# CERTAIN TYPES OF ALIMENTARY NEUROSIS.

A Thesis

by

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Part I.

# INTRODUCTION.

There are few more common or more popular diagnoses in the whole field of Medicine than "nerves." The reasons for this are many and diverse, involving doctors, patients and relations, and frequently reflecting credit on none of them.

Some doctors seize readily on this label as a justification for dismissing with contempt a patient for whom they have neither time nor understanding, and Hell hath no fury to compare with the tone in which such practitioners refer to those who are "nothing but neurotics," an attitude of prejudice which is in reality a child of fear and ignorance. Others are reluctantly driven back on what is hardly so much a diagnosis as a dumping-ground into which are relegated cases which do not seem to fit what we have been led to expect as the manifestations of disease, and which present perplexing problems in diagnosis and treatment.

A smaller number, but happily increasing, are fitted by taste or temperament to give to these patients the same skill and understanding which are so gladly given by their colleagues to cases of tuberculosis, heart disease, or broken bones.

Some patients seize readily upon this label which seems to confer a certain distinction, because the nervous temperament has been associated, to a large extent rightly, with an increased capacity for creative brain-work, especially of an aesthetic kind. Others, sensing already the bristling contempt of the unsympathetic doctor, ask in a voice of pitiful resignation, "Is it just my nerves?"

The relatives may also be anxious to obtain a verdict for "nerves," as is patently obvious in the pride with which a mother announces, in the presence of her offspring, that he or she "has always been a very nervous child." Other relatives, whose motives are less commendable, though their effects may be no less sinister, have suffered considerable inconvenience from the continued disability of the patients, and are anxious that the doctor should join in assuring them that it is "only nerves" and that all they need do is to "buck up" and "pull themselves together," and, above all, "not to worry."

It has long been customary to divide cases into "organic" and "functional." Time, money and skill have been lavished on the former in the teaching school, the hospital and the research laboratory, but the luckless souls who have been banished to the outer darkness of the "functional disorders" have frequently had

to be satisfied with a little sympathy, a little sedative, or a stern assurance that it was "just imagination." It was realised that children also had their functional nervous disorders, but in their cases the resources of treatment were enhanced by more easy amenability to persuasion, often more forceful than peaceful. Happily, an increasing interest is being taken by the medical profession in the influence of mind upon the body in health and disease, and a brighter day has dawned for the "nervous" patient.

It is a far cry back in the annals of Medicine to the days of the Humoralists, and yet it is from them that we date the conception of the influence of Temperament on Disease, even if we no longer attach the same significance to the four humours that they did.

Special attention has been focussed on the Nervous, Emotional or Neurotic Temperament and its influence on many organic and functional disorders, but it appears to me that an insufficient attempt has been made to trace the mechanism by which these effects are produced, and to correlate the so-called "neurotic state" with its functional visceral disorders as regards aetiology, symptomatology and treatment.

The aim of this thesis is to discuss certain functional disorders of the alimentary tract in children and adults, to

show that these are part of a generalised neurosis of psychogenic origin which produces its effects through the autonomic nervous system, to emphasise some points in aetiology and symptomatology not hitherto stressed, and to discuss the prognosis and treatment of these disorders from various points of view.

As we are touching a region of Medicine which has been, and is, fruitful ground for theory and speculation and has produced a confusion of terms, the exact meaning of which conveys a different impression to different people, it will be as well to define certain of these terms as they are to be understood in this thesis.

The word "neurosis" itself has had a chequered career. It was first applied towards the end of the eighteenth century, to such definable alterations of nerve function as, for example, lead colic. It was later applied to the effects upon the physiological function of nerves in remote parts of the body produced by the presumed vagaries of the uterus in hysteria. Huxley used it later to denote that side of a mental process which dealt with the neuron in contrast to the other side which dealt with the psyche, and Maudsley later applied it to what are now regarded as psychoses.

Some may object that the distinction between neuroses and psychoses is social rather than scientific in that one typically

leads to certification and the other does not, but to avoid confusion "neurosis" and "functional nervous disorder" will be regarded as synonymous terms denoting "an alteration of nerve function on the physiological level," while the term "psychoneurosis" will be used to define those disturbances in the mental sphere such as are often loosely referred to as "neuroses," but on this basis the word "neurotic" may be used to classify the type of patients who are the objects of this study, to avoid begging the question of the psychic factor.

# CLINICAL TYPES OF NEUROTIC PATIENTS.

When one tries to classify the types of neurotic patients the literature presents a picture of utter confusion, as no two writers adopt the same classification. They may be roughly classified according to age into Infantile, Adolescent, Adult and Senile groups, but this is not very satisfactory, because while neurotic manifestations vary at different periods of life and bear a resemblance to those of other patients of a similar age period, the old adage that "the child is father to the man" also holds good in the neuroses, and an individual has a typical form of reaction which tends to persist throughout life and to be only modified by advancing years.

Rather more satisfactory is a classification according to physical type - the frail and fragile, the florid and fulsome, the thin animated, and the angular visceroptotic types. When we attempt to classify them from the psychologist's viewpoint confusion is worse confounded, and we find divisions and subdivisions which multiply and divide until we have such a list as psychasthenia, hypochondria, neurasthenia, anxiety neurosis, anxiety hysteria, conversion hysteria, fixation and transference

neuroses, obsessional neuroses, and what are termed Narcissistic neuroses, which are really psychoses, and even between all these are mixed neuroses and border-line cases.

As the essential aim of classification ought to be to make the understanding of the various types more easy for the individual, it seems that simplification is called for. The simplest definition of a neurosis is "an alteration of nerve function." When the normal response to a nerve stimulus is altered it may be so in three ways.

1) There may be increased reaction.
2) There may be decreased reaction, and
3) a special phase of the previous, there may be no reaction at all.

If we admit a mental aspect, there is a further possibility that there may be no reaction because the mind ignores the occurrence of the stimulus. On this basis T. A. Ross, in "The Common Neuroses" has classified the psychoneuroses as

1) Anxiety states - those of increased reaction.
2) Neurasthenia - a state of diminished reaction.
3) Hysteria - where there is no reaction.
4) Obsessions - where the patient ignores the call for a reaction.

I have found this classification satisfactory in practice and hope to show how it is applicable to neurotic patients.

# THE NEUROTIC TEMPERAMENT.

"A neurotic temperament means a disposition in which the emotions are easily kindled, strongly felt, and restrained or controlled with difficulty.[1]" This excitability may apply to any of the emotions or to any combination of them. Love, hate, fear, anger, self-pity, or melancholy may predominate, but this uncontrolled action, coupled with faulty judgement as to the cause of the emotion, leads to mental and physical exhaustion. On the other hand the mere effort by force of will to suppress these emotions which try to force an outlet will produce a similar effect, lowering the vitality of all the metabolic processes. This temperament is largely a matter of inheritance. We are born with it, and though we may modify its outward manifestations its impulses remain with us throughout life. This is by no means a matter for regret. Everyone possesses this temperament in some degree, however small, and though an excess of neurotic temperament may entail much suffering to its possessor few will deny that a certain proportion of it is the spice of life. Music, Art, Literature, Science, Reforms of every kind, all derive their vital force from men and women of imagination and emotional susceptibility.

The unemotional person, who is never upset, who pursues the even tenour of his way, his digestion undisturbed, his sleep unruffled, a steady, loyal fellow who pays his way and pulls his weight, may make a comfortable success of life as, for example, a civil servant, an orthodox clergyman, a grocer or a plumber, but at best he only serves to maintain the progress which has been hardly won by the enterprise of his less happy brethren who, out of the travail of their souls, have supplied the fire that he lacks. The importance of this for parents, teachers, doctors, and all who regulate the training of the young, is that when the emotional temperament is recognised early in life, as it should be, no useless attempt should be made to suppress it, but every effort made by sympathy and common sense to so guide and modify it that its possessors may be of real assistance to mankind.

GENERAL CLINICAL STATUS.

The importance of the subject of the psychoneuroses is steadily increasing as the recognition of their manifestations becomes more common. The exact proportion of illness which is due to, aggravated by, or associated with mental or emotional upset, is very difficult to determine, because it is probably true to say that in every case of illness the mental reaction of the patient plays an important part in determining the development, manifestations, prognosis, and effects of treatment.

There have been few serious attempts to estimate the incidence of "functional" disorders, and the conclusions vary widely, from 5% to 80%. A recent preliminary study of great interest and importance has been made by J. L. Halliday, M.D., D.P.H., Regional Medical Officer of the Department of Health for Scotland at the Regional Examination Centre, Glasgow, who published a preliminary survey of " Psychoneurosis as a Cause of Incapacity Among Insured Persons." Of one thousand consecutive persons, excluding women pregnant and in the puerperium referred to him under the National Health Insurance Act for an opinion as to their capacity for work, he considered

that 33.5% were suffering from a psychoneurotic disorder after a full clinical and laboratory investigation, reference being made to a consulting staff of specialists when necessary. Great caution is necessary in applying these figures to the population in general, for the clinical material at a Regional Examination Centre is by no means a typical specimen. The reasons for referring such patients are many and varied, and many causes operate in such cases which find no place outside this highly selective class. It would be most interesting to know the place of psychoneurotic illness among the general population. Casual impressions, unsupported by any exact statistical records, based on the opinions of general practitioners solicited by personal enquiry, are that the psychoneuroses account for one third to one half of the disabilities which they are called upon to treat. A more exact assessment seemed to be called for, and I have tried to investigate the question by a review of four thousand unselected cases seen in two general practices, one in a seaside resort in Scotland with a considerable agricultural population in the surrounding district, and the other in a market town in Yorkshire with a large proportion of industrial workers. I confess that I started with the impression and in the expectation that approximately one third of the patients who were visited or seen in the consulting room were suffering from disabilities

either caused by or materially modified by psychoneurotic disorders. An attempt to investigate the question on a more exact basis shows that this guess was absolutely wide of the mark. Actually the percentage calculated on the total of all ages and classes was only 4.25%

I am well aware of many obvious criticisms which may be levelled at such an estimate. Many people consult a doctor for very trifling complaints, or for well-defined organic complaints of short duration, such as the "common cold," which leave no room for any psychic influence of appreciable significance. The figure, however, serves as a base for further investigation of selected classes of the community, to determine the effect of such factors as age, sex, social class, different types of employment, unemployment, marriage, family, environment, etc. The result of these further investigations will be discussed later in considering the basis of neuroses.

Before doing this, it is essential to lay down the criteria on which a diagnosis of "neurosis" or of "psychoneurosis" is made.

1) The history given by the patient does not fit in with that normally associated with any defined organic lesion. The symptoms may differ in character and distribution, in time of

onset, duration and periodicity, from any accepted clinical entity, and may suggest very strongly those of an emotional reaction.

2) The clinical and laboratory examination may show no organic abnormality of any kind, or insufficient to explain the subjective evidence on a physical basis.

3) There may be a definite association, usually not appreciated by the patient, between an emotional upset and the onset and course of the symptoms.

It must be stressed that the diagnosis is not one of negation, i.e., the position is not that the doctor, in the absence of any obvious organic lesion, concludes that by a process of exclusion, it must be a functional disorder, but that on positive evidence the findings point to a "functional" disorder. This latter statement does not exclude the possibility of an organic factor. On the contrary, it is absolutely essential, before coming to a diagnosis of a functional disorder, that a very thorough physical examination be carried out, in order that any organic factor may be exactly assessed.

It is frequently stated that the general practitioner has not the time to give these cases the attention they require for investigation and treatment, and this may often be true, but I have been fortunate in having the time and facilities for investigating many of these cases by laboratory as well as clinical

methods.

These cases present many features in common, and it will be helpful to discuss them briefly.

They fall roughly into two types, but there is no hard-and-fast division between them, and hybrids and variations are common. The first type are usually thin, built on fine lines, of sallow complexion, but flushing easily. If refreshed their movements are quick and restless, their glance travels quickly round their environment, and their expression is animated and expressive. Their intelligence is rather above the average, but their power of concentration is poor and they learn facts easily but forget them readily. Their temperament is mercuric - they are easily excited and just as easily depressed. They exaggerate difficulties and worry over trifles, and are affectionate but selfish. They are easily tired or discouraged and then their attitude is listless and dejected, and their heads and shoulders droop and the abdomen protrudes. Their appetite is capricious and they never fatten. They sleep badly and dream excessively, and are particularly liable to abdominal and circulatory disturbances.

The second type are more restrained. They are generally rather more thick-set and stouter, and are slower and clumsier

in their movements. Their attitude is stolid, but they are fairly observant and intelligent, and, although their mental powers do not scintillate as the other type may do, they are more retentive and sometimes get further. They are shy and rather proud, take themselves a little more seriously than the other type, who have the saving grace of a sense of humour, and are apt to be introspective and to brood about the lack of appreciation which others show for them. They usually harbour a grievance, and tend to become chronic dyspeptics, troubled with headache and constipation, or to become sour old maids or crusty, gouty, old bachelors.

PROGNOSIS IN GENERAL TERMS.

Broadly speaking, the prognosis of functional nervous disorders is favourable if the causal factors can be discovered, brought to the patient's notice, and their significance appreciated. So numerous are the theories of the cause of these disorders, and so strong is some of the evidence brought forward in support of many of them, that it is probable that most cases are the result of a combination or a chain of factors, and therefore their discovery may be a matter of considerable difficulty.

Generally speaking, prognosis is more favourable the younger the patient, because younger people are more adaptable, their bodies and minds are more plastic, the neurosis is not of long standing and has not been overlaid by secondary complicating factors, and lastly, in younger people the environment is usually more easily adjusted than in the case of older people.

The influence of Sex appears to vary at different age periods, being unfavourable to women at certain ages, such as puberty and the menopause, and more or less impartial at other periods.

Social and economic conditions would seem to be more favourable toward the extremes of poverty and riches than in the middle classes.

Heredity, physical condition, education, habits of life and thought, all influence prognosis favourably or otherwise, and their significance will be discussed later.

# REVIEW OF THEORIES OF CAUSATION OF NEUROSES.

In ancient Egyptian and Babylonian medicine disease was regarded as the result of magic or the action of evil spirits, and treatment consisted of a mixture of incantations and drugs. In the Old Testament disease is regarded as an expression of the wrath of God, to be removed by moral reform, prayers, and sacrifice, a doctrine revived by Heinroth and surviving to-day in the cult of Christian Science.

Empedocles (504-443 B.C.) conceived health as due to the balance of the four elements, Earth, Air, Fire and Water, and Hippocrates followed this with his humoral pathology. The influence of the mind upon the body was recognised by many of these ancient physicians, but no definite progress towards an understanding of the influence of one upon the other was made until Goclenius (1608), Kircher (1643), Maxwell (1679) and finally Mesmer (1766) evolved and developed the magnetic theory. They conceived a magnetic fluid in the body, the distribution of which regulated health and disease, and Mesmer believed this distribution could be altered by the will of another person. He certainly did produce powerful effects on his patients by his

awesome dress and ritual, but his subsequent followers narrowed down the beneficial effects to neuropathic subjects. Not till nearly a century later did Braid and Bertrand separately point out that any effect was due to "suggestion."

Charcot, a neurologist trained in scientific methods, working at the Salpêtrière in Paris, made extensive studies of nervous subjects, and built a great edifice of signs and symptoms of "hysteria," but his pupil, Bernheim, showed that these results also were due to suggestion in a band of neuropathic subjects unconsciously trained by Charcot. It was left to Janet, however, to give a more satisfying explanation of Charcot's errors. He noticed the anomalous distribution of some of the anaesthesiae and paralyses elicited by Charcot, for example, the "glove" anaesthesia, and also noticed the immunity from injury of these people, and therefore argued that the afferent stimuli must be reaching the brain and that the abnormalities of sensation and movement must be mentally produced. To explain this he evolved the conception of "Dissociation of Consciousness," i.e., the sensations which apparently did not reach the brain were split off and diverted into a separate stream of consciousness. Janet postulated that normal adaptation to reality required integration of the relevant mental processes, and that for this a certain "psychological tension" was required. If this was lowered by

constitutional or emotional factors a mass of these mental processes may be split off, as in hysteria, or their connections merely loosened, as in "psychasthenia."

To Freud, however, belongs the credit for bringing a dynamic conception to bear on these problems. "Why?" was Freud's war-cry. He has also been at one time a pupil of Charcot, but his present theories received their impetus from Breuer of Vienna who in 1880 demonstrated the traumatic effect of unconscious memories and the benefit derived from bringing them into consciousness.

After this very brief historical review the current theories of the causation of the neuroses may now be discussed in more detail.

# THE ORGANIC THEORY.

The Organic Theory regards the neuroses as due to a physical or biochemical change in the cerebro-spinal or vegetative systems, due to local trauma, exhaustion, or toxins from an endogenous or exogenous infection. Such a view was sponsored by Charcot, who regarded every neurosis as an expression of hereditary degeneration of nerve cells or their processes. Weir-Mitchell postulated fatigue as the essential factor in their production and treated his patients by absolute physical and mental rest aided by hyper-nutrition, so that the lost energy might be restored.

Deschamps regarded the nervous system as analogous to an electric battery which became "run down," thereby producing symptoms and requiring to be "recharged." The Great War struck a severe, if not a fatal, blow to these theories by its demonstration of the importance of psychic as opposed to physical factors in the production of neuroses, but the organic theory has been revived in a more subtle and scientific form by arguing from cases of Epidemic Encephalitis and of Huntingdon's Chorea, in both of which nervous, mental, and personality changes are found associated with brain lesions of an infective nature, and attempts

have been made to postulate basal lesions in neurotic cases. So far these attempts have been unconvincing, but as there is bound to be some organic change in the cerebro-spinal or vegetative systems in all neuroses as in all living processes, it is too early to dismiss the organic theory completely. At present there is only justification for saying that exhaustion, infection, and trauma are probably exciting causes in predisposed subjects.

# THE PHYSIOLOGIC THEORY.

The Physiologic Theory regards every neurosis as a "functional" disturbance of the brain, for example, as a breach at synaptic junctions with interruption of afferent or efferent stimuli; that is, that every neurosis is in effect a degree of anaesthesia or paralysis of a nervous impulse. It does not explain how or why this occurs, nor does it explain those features of a neurosis which are expressions of overaction of nervous impulses, unless these are regarded as disturbances of inhibiting mechanisms.

The Glandular Theory postulates endocrine dysfunction as the cause of a neurosis. There is a marked resemblance between the physical manifestations of the neuroses and the syndromes of disease of certain of the endocrine glands, for example, the thyroid and the suprarenal glands, and the identification of the action of the sympathetic nerves with that of an adrenalin-like substance would seem to enhance this claim. Mental and personality changes are also found in many endocrine upsets - the sloth, irresolution and melancholia of hypothyroidism, the irritability, drowsiness and premature fatigue of parathyroid deficiency, the loquacity and egocentricity of pituitary excess, and the intellectual blunting and failure of judgement of its

deficiency, and so on. That appropriate physical treatment may abolish the mental changes is shown by the success of thyroid in cases of myxoedema.

Not all cases of endocrine dysfunction show the same mental picture, however, and no constant endocrine changes are found in all cases of neurosis, so that at present we can only regard endocrine factors as contributory at most.

The endocrine theory has received fresh impetus from evidence which seeks to show that the diencephalon (and the hypothalamus in particular) is the nervous structure concerned with the expression of the emotions and that the pituitary, with which the diencephalon is closely associated, is the leader of the endocrine orchestra.

Sherrington showed that if the higher parts of the brain be severed from the diencephalon in a dog, the animal responds to ordinary stimuli in an exaggerated way by what he terms "sham rage." Cushing reports similar explosions in a patient suffering from a cerebral tumour which similarly destroyed these connections.

It is claimed that the alterations in temperament and behaviour in cases of epidemic encephalitis are due to lesions in

this region.

Professor Naish, of Sheffield, has described a case of a girl aged ten, in which a teratoma involving the whole of the hypothalamus resulted in a complete blotting out of the normal expression of the emotions. From an early age she never showed signs of joy, excitement or fear, though she told her parents she experienced these emotions. Mental powers and memory were good, but she was impenetrable to suggestion. Latterly she had polydipsia, polyuria (but not glycosuria) and temperature disturbances, presumably due to pituitary compression, but the absence of any emotional expression remained the prominant feature till death.

It is difficult to assess the value of a theory which is based on such a small number of cases, clinical and experimental, but in any event it would appear that at most this evidence only brings light to bear on the actual mechanism of expression of the emotions. The diencephalon may be the trigger which fires the gun, but this does not explain how the emotions are aroused and why. It may help to explain the mechanism of the shot, but not the motive behind it.

# THE BIOLOGIC THEORY.

The Biologic Theory regards a neurosis as an instinctive reaction of the individual in relation to the social group for the purpose of protection, or as a means of escape from reality. The physical manifestations, for example, tachycardia, increased respiration, muscular tension, cessation of gastro-intestinal functions, are survivals of ancient mechanisms to aid fight or flight.

The mental symptoms, such as fear, are aids to stimulate efforts for self-preservation. In the more highly civilised age in which we live the emotions do not find a physical outlet as of yore, and the nervous tension overflows in organic movements and sensations.

# THE BEHAVIOURIST THEORY.

# AND

# THE PSYCHOGENIC THEORIES.

The Behaviourist Theory looks upon all behaviour as a mass of conditioned reflexes. Experience and training account for all reactions to stimuli, and if their formation can be directed neuroses can be made and unmade, and can be caused by auto- or hetero-suggestion.

The Psychogenic Theories of the aetiology of the neuroses are various, and are each sponsored by a separate school under leaders who were for the most part at one time colleagues, but have diverged and gathered distinctive followings around them.

Dejerine regards every psychopathic state as springing from an emotional source. Emotional perturbation brings about physical and mental disturbances, and conscious reflection on these secondary upsets occurs. They are mistakenly inferred to be the result of organic disease, and auto-suggestion of physical disease results.

The hysteric differs from other psychopaths in that he reacts intensely in one organ or group of organs, and the psychic representation of these disordered functions becomes dissociated.

Ross has very usefully elaborated Dejerine's teaching by applying Pavlov's Conditioned Reflex conception to the theory of the emotional origin of neurotic symptoms. A mental event without any emotional significance in itself may have become associated with the emotional cause of the neurosis and this secondary event may acquire the power to set in motion the train of neurotic symptoms. The primary cause may remain in consciousness, but its connection with the neurosis may be absolutely missed. Thus physical and mental disturbance occurs without any apparent cause, even of an emotional nature, and reflection suggests the presence of physical disease.

Janet considered that energy was involved in all living processes, and psychological operations could be divided into two - easy ones requiring the cooperation of only a few elements, and difficult ones requiring the synthesis of many and intricate processes. When the "nervous tension" or "psychological force" is lowered by disease, fatigue, emotion, puberty, etc., there is a lowering of the mental level and only the simpler acts can be performed. Janet differentiated two groups of psychoneurotic disorders, hysteria and psychasthenia. In the former the lowering of nervous tension is localised and the affected group of processes tends to be dissociated, whereas in the latter the lowering is generalised. Janet considers that psychic behaviour is not the

work of pure mind; it is an activity of the whole organism. There is a fundamental physical fault, for the breakdown does not occur in an unusual situation. "Disorders of behaviour," says Janet, "are nothing more at bottom than various ways of going bankrupt." and treatment consists in adapting the life to the available nervous energy.

Freud regards mind as consisting at first of stored-up vestiges of existence led by countless former individuals which find expression in the instinctive tendencies. Pleasure results if an instinctive tendency is gratified by expending energy. If energy is liberated by the activation of a tendency but no outlet is allowed, unpleasant "affect" arises. This primitive mind is called the Id, and is impersonal. Its actions are elementary, primitive, direct, and appear to be forced, and Freud says the Id is dominated by the Pleasure Principle. Part of the Id in contact with the outer world becomes differentiated to form the Ego, which is associated with the Individual - "I do - think, etc." The Ego is governed by the Reality Principle. Actions demanded by the Id may be modified by the Ego because they are inopportune, that is, there is a conflict between the Pleasure and the Reality Principles. "Ego represents reason and sanity, and the Id contains the passions." Part of the Ego is unconscious, but was previously conscious. The Pre-conscious consists

of all thoughts, ideas, memories, etc., of which we are unaware at the moment but can recall. Nothing once experienced is ever forgotten.

"Censorship" decided what does and does not appear in consciousness. The Super-Ego or Ego-Ideal is an unconsciously built up model of the parents which contains the injunctions and prohibitions of all authority and is the germ of all religions. The Ego submits to the Super Ego, and the latter is in closer contact with the Id than is the Ego, and appears as Conscience. The Instincts are divided into Life Instincts and Death Instincts. The former are known as Eros, the goal of which is the preservation of the individual and the species. The Death Instincts are never conscious except as pleasure at paining others. Eros has an immense store of energy called Libido, which is mobile. If a direct outlet is denied, it avoids "pain" by finding an indirect outlet. Freud conceives the sexual life as beginning with life itself. The first stage is the Oral or Auto-Erotic when the infant derives pleasure, which Freud regards as sexual, in sucking first the mother's breasts and then other objects.

The second stage is known as the Narcissistic, because the infant's love is centred on itself as shown by the pleasure

derived from playing with his own fingers and toes.

In the third, or Anal-Sadistic stage, the infant derives pleasure from external objects, and particularly its own excreta, while in the fourth or Genital stage the genitalia are the seat of pleasure. About this stage there develops what is known as the Œdipus Complex in boys or the Electra Complex in girls. This consists of an attachment of the libido to the parent of the opposite sex. Now because that parent stands in a particular emotional relationship not only to the child but to the parent of the same sex, the latter may come to be regarded by the child as his first rival, and may be an object of hate. According to Freud this Œdipus Complex is the most important one in the unconscious, and it is the special function of the Super Ego to overcome it. By this time the child has reached the age of about five years and a latent period occurs in sexual development until the age of puberty, when the object of the libido is changed from the child's own genitalia to those of the opposite sex. Any fact of consciousness which is distasteful to the Ego may be "repressed," that is, it is banished into the unconscious and apparently forgotten. This is done by the Super Ego, which is the joint product of the Ego's conception of environmental demands and of the instinctive urges, and is fundamentally composed of the introjected images of persons

on whom the child has modelled himself, especially the parents. The repressed libido is said to be "sublimated" when it is transferred from the service of a reaction which fulfils the ordinary instinctive aim more or less closely to one which fulfils that aim in a less direct way. A healthy life is one in which the repressed energy is sublimated. If not, a Symptom develops. "The symptoms serve as a sexual satisfaction for the patient. They are a substitute for such satisfactions as they miss in reality."

Failure of adaptation at any level of development implies dissatisfaction. The individual may attempt to solve this conflict between his needs and reality in various ways if repression and sublimation fail. The unconscious material may break through into consciousness as a symbol, (an object with a strong personal affective meaning) or by means of dreams or dual personalities. The unconscious factors are dissociated from the rest of consciousness, and the field of consciousness is "restricted" with regard to them. The conscious ego may fail to notice the connection between these conscious and unconscious factors, or may refuse to do so. In the first instance the attention is displaced from the emotional upset to the visceral disturbances which accompany it, and the inference is made that he suffers from an organic disease. In the second instance the formation

of a symptom denotes a failure on the part of the Ego to repress the strong affective accompaniment originally associated with the repressed material. The symptom may take either a physical or mental form. If physical, it may be motor, such as a tremor or a paralysis; or sensory, such as an anaesthesia. If mental, it may take the form of an apparently meaningless fear or "anxiety" which becomes attached to an object which is consciously far removed from the original repressed material, and attempts may be made to ward off the anxiety by obsessive acts or words.

Another method of dealing with an imperfectly repressed complex is by "projection", where the complex appears in consciousness but projected as external reality. This may take a simple form such as we all experience when we see our own faults in others, or may take the serious form of delusions. The projected complexes may be elaborated into phantasies. A phantasy, however, may appear in consciousness without projection if it is not associated with the emotions which caused the Ego to disown it, or, much more seriously, if the Ego-Ideal is so disintegrated that repression is not exercised.

In some cases there is abnormal development of libido which becomes arrested at an intermediate stage of development. Failing to find satisfaction by adapting himself to reality,

the individual "regresses" to the stage where he found satisfaction, either in external objects, his parents, or himself. This brings him into conflict with society, and induces a feeling of guilt and he attempts to repress his tendencies from consciousness. If repression fails, depression or anxiety or projected wish-fulfilment occurs as a symptom. All these reactions are substitutes for healthy adaptation to reality. The further they lead the patient from reality the more serious they are, and the worse the prognosis for recovery.

In the psychoneuroses the fixation is at the external object stage, in the psychoses at the narcissistic stage. Compulsions and obsessions are the result of regression to the anal-sadistic phase, and hysteria is due to fixation on the parents and is therefore easier to treat.

The psychoses cannot be treated by analysis because regression is too far and the patient is wrapped up in himself and cut off from the outer world, so that he is not interested in the physician. Psychoneurotics are fixated on external objects and are therefore interested in the physician. They "transfer" their libido to him as an object, giving him the affection they previously bestowed on their parents. "Transference invests the physician with authority and is converted into faith for his

communications and conceptions. Without transference ..... he would not even listen to the physician and to his arguments."

Jung considers that Freud is too narrow in his interpretation of symptoms and too insistent on sex. Freud thinks that the symptom is of interest because one can work back from the symptom to the cause. Jung thinks it is also an attempt to comprehend the psychological development of the individual. He regards Mind as composed of a small conscious and a large unconscious part. In the centre of the Conscious is the Ego, which is aware of environment. "Persona" is the part of the conscious mind in contact with the outer world - the individual personality. Below the conscious is the unconscious, and in the centre of it is "the shadow." The Unconscious is (a) personal, and (b) collective. The personal unconscious is compensatory to Persona.

In the collective unconscious are stored memories and images of all experiences passed through by the human race during the course of evolution, and it is the source of libido which Jung regards as all psychic energy.

The Anima is the part of the collective unconscious in contact with its images and is the counterpoise of the Persona. At the centre of the whole is the Individual, at first unconscious, later conscious. The mind may operate in four ways - Thinking,

Feeling, Sensation, Intuition, or a combination of these.

Individuals are divided into Extroverts and Introverts according to the direction of the flow of their libido. Each individual is consciously the opposite of what he is unconsciously. Each function of mind has libido attached and should be exercised consciously. One function is usually superior and draws part of the libido from the others. Mental disturbance may arise if a problem can only be solved by an inferior unconscious function, and regression takes place and the libido finds outlet in a primitive, childish reaction.

Regression leads to hysterical states in the extrovert and to anxiety states in the introvert. Repression leads to compulsions and obsessions. The psychoneuroses arise in the personal unconscious, and the psychoses in the collective unconscious. Dreams are important to Jung because they tell both of the past and of the future. If the persons in them are real, they deal with the experience of the individual and arise in the personal unconscious. When the symbols are unreal, each part represents an aspect or tendency in him who dreams.

Adler was at one time a colleague of Freud, but he has diverged from the latter's theories and founded a school of his own. Adler disagrees with the paramount position which Freud

gives to Sex in the causation of the psychoneuroses. He considers that every person has a life goal, which is the attainment of Superiority, and Sex is important only because it is one of the ways in which the individual endeavours to attain this goal. The individual's behaviour is determined by this individual aim and goal, and his Life Pattern is the method which he adopts to attain it. Adler thinks the Unconscious is much less important than Freud would have us believe. Memories are stored and transmuted into an emotional tone of aversion or inclination to a specific reaction, which acts more quickly in response to a given stimulus than conscious recall would do. If memories become unconscious before their significance is fully appreciated the reaction may be mal-adapted and illness occurs. Everyone develops in childhood a feeling of inadequacy which Adler calls an Inferiority Complex, and it is this which prompts all Man's struggles to attain to a feeling of superiority. This feeling of adequacy may be engendered by the individual's position in the family circle, and is increased by physical, social, religious and economic difficulties, whether real or imagined.

Each life goal is peculiar to the individual, hence the term "Individual Psychology" which is applied to Adler's school of thought, and is the outcome of his imaginings of what he would be or do if he did not suffer from his disabilities. The

difference between healthy and unhealthy individuals lies in the way in which this goal is realised.

The problems of life to be faced are those of Society, Work and Sex. The neurotic fears failure and loss of self-esteem, and avoids making adjustments to these problems, spending his life in evading responsibilities and decisions and living in phantasy; asking more from society than he is willing to give.

"Neurotics do not co-operate: they want others to co-operate. The members of the family and the doctor should co-operate and they will indulge, indulging and exploiting the co-operation of others and recognising the idea of co-operation — for the others." The psychotic, on the other hand, will not co-operate at all. Psychnneuroses are compensations developed because the individual fears he will fail to attain the success which is his by right.

Adler considers that the dream is not merely the satisfaction of wishes denied in reality, but is "a function of the whole style of life, more dynamically related to the future than to the past — a fact intuitively known to antiquity when dreams were regarded as prophetic and not historical. The dream strives to pave the way towards solving a problem by a metaphorical expression of it, and is a sign that the dreamer feels inadequate

to solve it by common sense. Hence, the more the individual's life goal agrees with reality the less will he dream.

Adler gives different meanings to some of the terms used by Freud. "Transference" he regards as simply "social feeling" and lays it down that there must be no attitude of ascendancy on the part of the physician such as Freud considers essential, but that the patient should be approached in the attitude of "benevolent comradeship" and an attempt made to understand his life pattern and then to show him what his life goal is, pointing out to him the futile methods he has been pursuing to reach it and helping him to adopt a healthier method of attainment.

Part II.

# THE BASIS OF NEUROSIS.

A review of these theories reveals a wide diversity of opinion as to the causes of neurosis. Inborn defect, infection, endocrine dysfunction, faulty environment and errors in the mental life, have all been invoked as the important aetiological factor. The consideration of any one of these factors raises questions which admit no convincing answer. Not all who are the victims of an infection present neurotic manifestations. Neurotics break down in environments and in situations of emotional stress where others pass through unscathed. Reflection on these and similar problems suggests that there is no single factor which explains a neurosis, but that it is a superstructure built on a broad and complex foundation, the component parts of which require investigation.

CONGENITAL FACTORS.

Charcot, from whom the modern scientific study of the neuroses may be said to date, regarded them all as manifestations of a hereditary mental or nervous deterioration. The infant enters the world endowed with certain undeveloped physical and mental characteristics. These are often said to be"inherited," and to "predispose" him to certain physical and mental diseases. It is generally granted that certain anatomical characteristics such as a tall or short build, blue eyes, or red hair, may be inherited, in part at least, through the chromosomes, and possibly certain mental patterns may depend on a particular arrangement of the neurons which can be handed down, but it is very doubtful if physical or mental diseases can be passed on by chromosome mechanisms.

So distinguished a biologist as Julian Huxley says "At the instant of our conception, we are dealt the hand of cards with which we have, willy-nilly, to play the game of life;..... It is not the mother's blood which decides the temperament and capacities of the child, nor what she and still less the father have eaten, drunk, experienced or thought about ..... the child's

qualities are determined, in so far as heredity has its say in the matter, by the particular assortment of chemical units which it receives at this instant." A game of cards, however, is not necessarily decided by the deal. The temperaments and capabilities of the players, their effect on each other, and the environment, may combine to alter the issue. We are apt to regard manifestations which appear at the moment of birth as inherited, and to forget that at that moment the child is nine months old, and much has happened in that time.

The emphasis laid on the stigmata of degeneracy a generation ago is now largely discredited, but there is no doubt that organ inferiority is a condition which requires consideration. The appearance of the same diseases in successive generations of the same family, — arthritis, arteriosclerosis, premature senile decay — and the well-recognised effects on personality of physical defects such as anterior poliomyelitis and deafness in childhood, lend colour to the teaching of Adler, who based much of his psychopathology on the emotional reactions of an individual to his personal physical inferiority. This inferiority does not imply disease of the organ in question, but that it is functionally subnormal. Such a defect may be due to disturbed foetal development, as in congenital heart lesions, or to lack of maternal hormones, as in cretinism.

Intra-uterine disease, from which the child may have recovered, or slight birth injuries, may also be the starting point of these organ inferiorities.

It is recognised that a predisposition to some of the psychoses, particularly the manic-depressive and schizophrenic types, appear to be transmitted from one generation to another, but it is harder to believe this of the psychoneuroses, because the characteristics of these are normal to the child at some stage of development and are pathological in the adult only because they are infantile traits which have not developed into adult form.

If a neurosis is an inability to adapt itself to environment it is obvious that the two factors concerned, the child and its environment, are very closely related to the parents and therefore congenital. Not only is the child the product of the fusion of cells from both parents and therefore the inheritor of their physical and possibly mental characteristics, but the mother is also the child's environment during the nine months prior to birth. Knowing what we do of the effect of emotions upon endocrine and circulatory functions, is it not reasonable to suppose that the mother's thoughts, her fears, and hopes, her joyful anticipation or her anxious dread, all react on the

circulation and its contained hormones which are nourishing the developing child and affect it just as profoundly as her habits of food, drink and conduct?

It is very difficult to assess a history of mental heredity. On the one hand patients and relatives may be anxious to conceal a family history of mental trouble, particularly of the more serious varieties, and on the other hand it is useless to ask vaguely whether any relatives are given to worrying or are "nervous." Such a history could probably be obtained about any of us from our own relatives.

This is where the general practitioner is able to give a better assessment than the specialist, if he is interested in the subject, because he probably knows the relatives over a period of years and is familiar with their physical and mental reactions. Looking over my own cases I am of the opinion that in fully 75% of cases of neurosis, another neurotic subject can be found within the immediate family circle, (that is, the parents, brothers and sisters), and in the majority of the remainder there is evidence, frequently from personal knowledge, of similar cases among grandparents, uncles, aunts or cousins. Of course, the presence of another neurotic patient within the family circle does not mean that the neurosis is congenital. It may be that the neurotic relative creates the environment

in which a neurosis breeds and develops. It is a fact of every-day experience in general practice that, given a neurotic child, one can describe at least one of the parents, and the converse holds good. One may ask, "Which parent?" Berry Hart, a gynaecologist of Edinburgh, once formulated the interesting theory that a child inherited some organs from one parent and some from the other, and he considered that the brain and nervous system were inherited from the parent of the opposite sex. Without being at all committed to such a theory I have endeavoured to trace the proportion of sex-transmission. Out of seventy-four cases of neurosis where a similar condition was present in one parent, the mother was the affected party in fifty three instances, - about 70%. Of the fifty three cases there were thirty boys and twenty three girls. The twenty one "paternal" cases were almost equally divided - nine boys and twelve girls. These figures are only vaguely suggestive of a mother-son and father-daughter preference. The much more important rôle of the mother in moulding the life and habits of the growing child is sufficient to explain the preponderance of maternal influence in the causation of neuroses.

An attempt was made to correlate the mother's mental reactions during pregnancy and labour with the infant's behaviour after birth, and with the onset of neurotic symptoms in particular.

In almost every case where a neurosis made itself manifest shortly after birth sources of emotional conflict could be found. The commonest of these were the resentment due to an unwanted pregnancy, fear of a miscarriage of an ardently wished-for pregnancy, distress over an illegitimate pregnancy, and fear of the ordeal of labour itself. If, on the other hand, the mother was placid and even indifferent about the coming child, or if she looked forward to the birth with a sensible pleasant anticipation or faced her ordeal with a quiet faith, one seldom found a neurotic baby.

A further investigation of a possible congenital effect was to see if there was any connection between the neurotic manifestations in the mother and the child. There seemed to be a link in that gastro-intestinal upsets were the commonest in both generations, but the importance of this is largely vitiated by the fact that vomiting of pregnancy is probably the commonest neurosis during that time and infantile neurotic manifestations are predominantly of the alimentary tract. This investigation was extended to later periods of life and the neurotic manifestations of relatives were compared. There is a very noticeable tendency for the symptoms and signs to be similar, but it is difficult to assess how much this is due to a mutual organ inferiority and how much to the powerful factor of suggestion.

ENVIRONMENTAL FACTORS.

If the failure of the neurotic is an inability to adapt himself to environment it is probable that the environment plays an important part in the causation of the neuroses. The difficulties of the child in thus adapting himself begin, at the latest, at the moment of birth. From a perfectly sheltered life under constant conditions of temperature, moisture and pressure, with all his nutritional and excretory needs attended to without any expenditure of energy on his part, he is suddenly thrust forth on a rough and tortuous journey, subjected to considerable stress and strain, ultimately to emerge in a completely new environment. For the first time cold stimuli play upon his body, strange sensations of light, sound, touch and smell, however dimly they may imprint themselves upon his mind, come to upset the tranquil order which has hitherto been his lot. His first test of ability to adapt himself to environment is a severe one. Though he may be lovingly cared for he has nevertheless to begin to work. He needs to work to obtain those substances necessary for his body and to rid himself of deleterious matter, and just like those who, accustomed to luxury, suddenly find themselves in straitened

circumstances where they are forced to earn all they get, he may not like it. Babies very quickly sense the emotional atmosphere around them, and if the mother is always worried and anxious, fearful of any possible mishap, the infant may quickly discover this and grasp somehow in a primitive way that this new world is a dangerous place where all sorts of trouble may be expected, and so his first fears, of what he knows not, have their origin. If, perchance, he has a little too much to eat and wisely returns the excess, or has too little and does not pass any residue, he may notice how much his mother and the woman next door are upset about it, and become worried himself about it and so perpetuate the trouble. If he is a sharp lad as well as a bad lad he may spot that more attention is paid to him when he is out of sorts and he may use this knowledge as a weapon to gain control of his mother and other relatives and friends, and is now quite a considerable length along the way towards a well-developed neurosis.

The environmental influences at work may be broadly classified under the headings of Home, Church, School, Work and Play, and call for further discussion.

Regarding the home, its economic status is of some importance in the causation of neurosis, but this effect seems to vary at different age periods. During the first five years of life

neurotic manifestations are not common, in my experience, in the lower middle and working classes. The bulk of cases occur in the upper middle class with a smaller group in the upper classes. It is difficult to give exact figures, for the three classes are not equally represented, but after making some allowance for this the proportions work out at roughly 15%, 60%, and 25%, in the lower, middle, and upper classes. The principal reason, as far as I can see, is the varying amount of attention given to the child by the mother. In the lower classes children tend to be more numerous and therefore more closely spaced, and individual attention is less. The child is therefore more self-reliant, and adapts himself more readily to environment. In the upper classes the young child is largely in the care of nurses or servants who are generally efficient but unemotional, and the child is less liable to acquire emotional habits and to profit thereby. In the middle classes, however, children are few and far between, are more or less constantly in the mother's company, and are the centre of her hopes, fears, joys and sorrows.

In the 5 - 15 age period there is an increase in the relative incidence of neuroses among the lower middle classes. There seems to be evidence to suggest that this is connected with a growing appreciation of their limitations in life — lack of money and the comforts it can bring, and limited avenues of

employment. It is this class who experience greater fluctuations in environment than others. The poorest classes are always poor, the middle and upper classes have usually enough and to spare, but the resources of the lower middle and upper working classes vary with the incidence of unemployment, the influence of which is considered later.

In the adolescent period the neuroses are concentrated in the middle and upper classes, and the proportions are much more equal. The problem of work is the principal factor to be faced, but presents different aspects in the two classes. The middle class adolescent has usually been given a good education, often at considerable parental sacrifice, and great hopes are built upon the result. The fear of failure may be a powerful factor in producing a neurosis. In any case it often means a launching out into a new environment for which the young man may be socially ill-adapted, and furnishes a further source of conflict associated with feelings of inadequacy.

In the upper classes neurotic manifestations are much more common among female than male adolescents, and I believe this is related to the problem of work, or lack thereof. When a young lady has finished school, and perhaps college, she may find she is at a dead end with no more useful occupation than

that of arranging the flowers in the drawing room, and her pent-up energies and frustrated hopes find outlet in a neurosis. This factor of cessation of activity also operates amongst women of middle age and over, the wives of men who have "risen in the world." I have had several cases of this type. The woman comes of stock who have always been workers, and when she is no longer expected to work and is ill-fitted for the society of similar economic status, which does not look on her with kindly eyes, she finds relief in neurotic illness.

In middle life there is an increase in the incidence of the neuroses among the lower classes, due largely to the question of unemployment amongst the men, and to domestic worries among the women. They have come to a time when the prospect of an old age which does not hold out much promise of comfort and cheer is a reality which they cannot dismiss. There is also an increase amongst the middle classes which can often be traced to increasing family responsibilities, which make heavier calls upon the purse and create a dread of illness.

Strangely enough, old age brings a measure of relief to both the lower and middle classes, and neurotic illness is commoner amongst the well-to-do. Perhaps the poor have become resigned, the middle classes realise that the battle has been

fought and either won or lost, while the upper class feel that the pleasure of this life is running out and the prospect of the future is uncertain and less attractive.

Another factor of home environment which has been investigated is the position of the child in the family. Adler has referred to this problem, which bears on his doctrine of the feeling of inferiority. I have found that neuroses are uncommon in large families except at the extremes of eldest and youngest, with a particular preference for the youngest. In smaller families there is a decided predominance of eldest over other members of the family in frequency of occurrence of neuroses. Of sixty cases reviewed, thirty five were eldest members, and ten were the youngest, but of the thirty five "eldest" twelve were "only" children. These figures are of doubtful statistical value, for with small families the proportion of "eldest" members is bound to rise.

Reviewing the cases from a broad family point of view, the fact stands out that the position in the family is of importance only in so far as it places the individual in a position of real or imagined inferiority. The eldest may find that too much is expected of him, and break down when he is supplanted in parental esteem by a younger member. The arrival of a second child frequently appears to bring on neurotic symptoms in the first.

The youngest may suffer because he is discouraged by the ability of the older and bigger members of the family to do things which he cannot do. On the contrary he may find that the older members make things easy for him, and a breakdown may occur when later he is precipitated into the arena of open competition.

The intermediate members may chafe because they enjoy neither the authority and importance of the eldest, nor the indulgence shown to the youngest, and this may either fire them to surpass the others, or drive them to unhealthy reactions where they seek prominence through illness, or become Ishmaelites with their hand against everybody.

By far the most powerful factor in home environment is Parental Influence. If the parents are mentally and emotionally well balanced and in harmony with each other, the effect on the children is beneficial, and if these conditions do not obtain the reverse effect is operative. Too much emotionalism appears to have a bad effect on children. Parents usually underestimate a child's reasoning powers and try to produce effects by fear or sentimental entreaty which could be obtained by reason. Example and precept should harmonise and children are quick to spot any discrepancies. Children look to their parents for a sense of

security, and they lose this if the parents' teaching and example are built on shifting sands. This sense is also bound up with their early conceptions of law and order. Too often the situation at home is law and chaos. The threatened punishment is not carried out, or the offence which is winked at one day meets with retribution the next, until the children either feel they "have their parents on a string," or never know just where they stand in a given situation. It is small wonder that when they are ultimately cast forth into a stern world where "as a man soweth so shall he also reap" they break down in the face of realities which they have been unaccustomed to encounter.

The Church as the most familiar visible association with Religion has always had a profound influence upon mental health. From Old Testament times right up to this present age, men have postulated a relationship between sin and disease, and attributed therepeutic efficacy to prayer and moral reform. Man has always looked to a Supreme Being to aid him in times of trouble and perplexity, and hoped for a better life to come and feared a judgement now or hereafter, so that his religious beliefs have been closely linked up with his emotional life. No attempt, so far as I am aware, has been made to analyse the influence of religious beliefs in neurotic patients. It has been said that all men are religious since everybody believes in a god of some kind

whether it is money or power, or only oneself, but I am restricting religious belief to a belief in God. I have not found an atheist among my neurotic cases. Probably every person's religious belief varies from that of anybody else, so that the only convenient method of classification is by denominational labels. 40% of the neurotic cases investigated from this angle professed no denominational attachment, or only of the most casual kind. Of the remainder, the predominance of the evangelical churches (other than the Evangelical Church of England) was marked. This applies both in Scotland and in England. These churches, Methodist, Baptist, Congregationalist, and other bodies such as the Plymouth Brethren and the Salvation Army, are known not only as "evangelical" but "free"; that is, non-established. On broad principles of religious belief the Established and Non-Conformist or Free Churches do not show much divergence, but the emphasis is different. The evangelical belief in Christ as the Son of God is much more intense and personal than that of the average Established churchgoer. They emphasise the necessity of salvation from sin by belief in the Atonement of Christ upon the Cross, and the necessity for a life lived in harmony with the Divine Will and Purpose. Perhaps it is not unfair to say that the Established Churchman's attention is fixed on his offering of worship to God, while the Free Churchman is interested in what God has to say to, and can

do for him; i.e., the former is extroverted and the latter is introverted. The difference in emotional effect is obvious. The one feels he has done his duty when he has made his offering of worship - the other feels he is in a constant relationship, and if he has not stabilised his belief on a sure foundation it will give rise to endless conflicts, fears and hopes, trials and tribulations. If, however, the Free Churchman has his belief under the control of reason and emotion there is nothing more impressive to a doctor than the calm assurance and hope with which he can face the trials of sickness, suffering and even death.

There is one aspect of the relationship between Established and Free Churches which may have a bearing on the causation of the neuroses, and that is the stigma which often attaches to minorities and may give Free Churchmen a feeling of inferiority which hinders their adaptation to environment. A noticeable feature is the comparative rarity of neuroses among Roman Catholics. The discipline which the Church of Rome exercises over its disciples may prevent the nervous storms to which other bodies are prone. Whether Free Churchmen are subject to neuroses because of their beliefs, or whether their beliefs are those which thrive in a neurotic temperament, is an interesting question.

The influence of religious teaching and belief on children is very important. Too often children are coached in an atmosphere

of fear, where God is pictured as a super-policeman spying on every wrong and waiting with the heavy hand to punish. Few things, on the other hand, are more beautiful than the faith of a child who has been brought up in a healthy religious atmosphere. Whether it is wise to stress denominational differences to children is of some importance. I do not think it is healthy for a child to be brought up to regard his circle as superior to another for reasons which he cannot comprehend, nor on the other hand, to be made conspicuous by being "different" when he does not believe in the difference.

School is important from the point of view of environment in that it is the first contact with another world on a large scale, which the child has to make, and on his upbringing at home depends the reaction he will make. If he has had things all his own way at home, if everything has been made easy for him, if rules have only been made to be broken at will, then he reasonably expects that a similar state of affairs will exist at school, and a rude shock awaits him when he finds he is one of a crowd with no preferential treatment. If, on the other hand, he has been properly trained, he will endeavour to meet this competition fairly and squarely, will quickly form his friendships, and quickly become just as much at ease as he did in his own home.

Work is an important factor in the neuroses. Reviewing my cases from the viewpoint of differential occupations I find that it is those jobs which are too monotonous to be interesting, but not sufficiently so to be automatic, which are associated with the neuroses. If a job is sufficiently mechanical, the worker can obtain relief by gossip or daydreaming, but the lorry-driver, the typist, and the clerk have to keep their minds on the work and frequently present a fatigue neurosis. I have also had several school teachers in my series, but in every case there was a complicating emotion such as a grievance or a disappointment at failure to climb in their profession as they had hoped, which had sapped their interest in their work and left them easy prey to the heavy demands which teaching makes on their nervous energy.

The effect of unemployment is interesting. When a man loses a job through economic depression there is a period averaging about six weeks during which no symptoms appear. He is on holiday, and enjoys the novel experience, propping up the street corner while he engages in repartee with his brethren in distress. Then comes a period of anxiety with symptoms and signs of an anxiety state. The scanty savings which eked out his dole are running dry, clothes are needed at home, and he sees no prospect

of work, feeling his unemployment as a blow to his pride. This state lasts for about two to six months in my experience, and then these symptoms die down and are succeeded by a period of depression with fatigue symptoms. Curiously enough, these findings are not applicable to women, who often seem healthier when out of work. Perhaps they need never reach the stages outlined above, as if they are really anxious for work of any kind there are usually openings in domestic service.

Play is as essential as work to Man's health and happiness, and its association with the neuroses is interesting. A great deal about a child's mental reactions can be learned by watching him at play, especially with other children. The reluctance of the neurotic child to share unless he gets his own way, and the devices he will adopt to avoid defeat, are all pointers to his mental pattern.

About 30% of adolescent and adult neurotics take no interest in games of any kind. Their recreations are introspective or solitary, such as reading, music, and the theatre, and they succeed in introjecting themselves into what are normally objective pastimes. They are absorbed in their attitude to the object of study, and its effect on them. They see themselves in phantasy as the hero of the play or novel, the composer of the symphony

or the conductor of the orchestra. Of the remainder a large proportion play one or more games, but rarely very efficiently. They lack the courage necessary for hardy games such as football and rugby, and the physical and mental co-ordination required for success at cricket, tennis and billiards. They compensate for this, however, by again living in phantasy, picturing themselves as the idols of international football crowds or winning the Wimbledon Open Singles. Some play golf, which has the advantage that it can be played singly, avoiding defeat, while others prefer quiet games such as draughts or chess. Few of them are good card players, for they lack the necessary concentration and quickness of thought.

A very interesting and significant fact is that I have never met the neurotic who is fond of swimming. I believe the reason is twofold - firstly the dislike which all neurotics have for extremes of temperature and cold especially, and secondly the fear of drowning.

EMOTIONAL.

The effect of the emotions on bodily functions has long been recognised and has found a place in ordinary parlance, as when we are "sick with fright," or "cannot swallow" a disagreeable situation, but the relationship between our feelings and our somatic processes has only begun to be understood as the physiology of the sympathetic, or more properly the autonomic, nervous system has been studied. As Guthrie says,(18) "The sympathetic system is at the mercy of the mind." Terror, fear, anxiety and worry find part expression in visceral disorders. It is probable that the emotions render the nerve plexuses hypersensitive to cerebral or local stimuli, and in turn react on local bodily functions. As Cowper says

"Faults in the life breed errors in the brain

"And these, reciprocally, those again."

and Sherrington has put it a little more precisely when he says "Environment drives the brain, the brain drives the various organs of the body."

The physiological action of the emotions has been studied by

Cannon, Crile and Sherrington among others. Cannon[19] has demonstrated centres for the emotions in the mid brain. The cortex has normally an inhibitory action on impulses from these centres, and symptoms result when inhibition fails. Naish and Harding[8] in a case previously quoted, have shown the effect on emotional expression of a tumour of the diencephalon. Crile[20] has studied changes produced in nerve cells during physical trauma and has shown that these are abolished if the afferent nerves are blocked, but not abolished under general anaesthesia. He found that fear acted like trauma in stimulating the noci-ceptors, and that emotion without action first stimulates the brain cells as shown by hyperchromatism, then produces exhaustion by chromatolysis.

Fear is only found in "nerve-muscle-defence" animals, and it stimulates all organs aiding self-preservation and inhibits all others, so that Man still fears with all his organs. Civilised man is in auto-captivity. His brain receives many stimuli to which custom, etiquette and prudence deny the normal active response, usually of fight or flight, and the pent-up energy finds an outlet in symptoms.

The instincts which are liable to distortion are those of self-preservation and those centred round sex, and to these may be added secondary instincts such as the herd instinct, the desire

for power, and the love of comfortable security.

These instincts when distorted give rise to an expression of fear or of worry, known as an anxiety state, and tends to arise when an individual encounters a difficult situation and reacts to it in a faulty manner. If he avoids the difficulty it becomes harder to meet the next one, and so he acquires the habit of reacting badly to the stresses of life and lives in a constant state of anxiety. The faulty reaction may take several forms, commonly that of <u>flight</u> or seeking of refuge by avoiding the difficulty and finding peace in a submissive, resigned type of invalidism without loss of self respect. The symptoms are commonly those of diminished action or stasis affecting the stomach, colon or heart. A second type avoid the difficult situations but retain their self respect and their feeling of power over their relations and friends by a more ostentatious form of invalidism which tends to show itself in overaction and result in spasms such as pyloric spasm or pseudo-angina, catarrhal affections, for example, mucous colitis, and hyperthyroidism. By these means they attract the attention they desire from their relatives, and distract their own attention from their difficulties, fastening it on to the symptoms which they regard as evidence of illness. The commonest painful situations which

precipitate an anxiety state are

a) Personal difficulties.

Disagreement between husband and wife, either open or occult, due often to faulty sex adjustment and to bad methods of contraception in particular. Loss of a friend or relative, worry over the illness of a dear one, sorrow over an erring child, are frequent sources of anxiety. Single women living with a widowed mother, or youngest daughters kept at home to look after the parents when the others are married or launched on careers, are very prone to nervous breakdown due to conflict of personal desires and parental loyalty.

b) Economic Difficulties.

The struggle to pay the rent, inability to meet the hire purchase payments or bills incurred without the husband's approval, losses due to drink or gambling, are frequent precipitating causes among the poorer classes, and the struggle to give their children the education to enable them to "better themselves" often causes anxiety states among the better classes.

c) Occupational Difficulties.

Occuptational difficulties which cause nervous breakdown are not so often due to hard or difficult work as to these coupled

with an emotion such as resentment against an employer or overseer or a grievance, such as a compulsory change of job. Unemployment has a similar effect, previously discussed.

d) Fear of Disease.

This is a common cause of breakdown. Tuberculosis, cancer, heart disease and appendicitis are the commonest fears in that order, but the influence of a case known to the patient can usually be traced. These fears are commonest in those classes who are often in contact with disease, such as nurses, medical students, clergymen and school teachers, but are not qualified to eliminate its existence in themselves. It is also common in non-insured classes who have little on which to fall back in times of prolonged illness.

POSTURAL.

We are all familiar with the connection between our physical and mental well-being and our posture. There are the days when we feel perfectly fit, full of the joy of life, ready to tackle anything, and we walk along with a spring in our step, our heads held high, chests out and shoulders braced back, but there are the other days when, worn down by fatigue and sorrow, or chafing under some defeat or irksome situation, we slink home with bent head and rounded shoulders, chest sunken and abdomen protruding, sagging just a little at the knees and our tail metaphorically between our legs. The latter picture is typical in quality, if quantitatively exaggerated, of a large proportion of neurotic patients. The regulation of posture in the normal intact individual depends on the proper co-operation of several isolated structures. It depends largely on skeletal muscle tone which is dependent on afferent impulses from the sense organs in the muscles and from the vestibular apparatus and eyes, and the reflex arc is wholly somatic and not sympathetic. Sympathetic nerve fibres are found in skeletal muscles, and stimulation of these or the imitation thereof by administration of adrenalin

delays the onset of fatigue. Perhaps this effect is related to the mobilisation and utilisation of glycogen.

Posture ultimately depends on the kind of discharge emanating from the anterior horn cells, which is an algebraic summation of various exciting and inhibitory stimuli from posterior and upper nerve tracts. If there is mental fatigue or upset there is bound to be a lessened volitional discharge of energy from the anterior horn cells and an interference with the nutrition of the muscle through its sympathetic supply.

The fundamental disability in neurotic posture is a failure of the muscles concerned in overcoming gravity to perform their duties satisfactorily. The afferent impulses of discomfort produce an exaggerated response and the individual takes the path of least resistance as neurotics do, and there is a general sagging. Faulty posture is not only an expression of mental fatigue - it is a cause of it. It is easily demonstrable that persuasive correction of faulty posture engenders at once a feeling of well-being in the neurotic, provided there is no nervous or debilitating lesion to account for it.

An interesting fact not previously commented upon to my knowledge is the decubitus of neurotic patients. I have never seen a neurotic who sleeps flat on his back with legs extended.

Almost all lie on their side in a position of general flexion, the foetal attitude. They are literally "wrapped up in themselves" or hugging themselves, and I think it is suggestive as being an unconscious reflection of their mental attitude

ENDOCRINE.

The presence of definite mental characteristics and of dysfunctions which appeared to exert their effect through the autonomic nervous system were bound to suggest an endocrine cause for the neuroses, and the thyroid gland has always been recognised as a liaison between the emotional life and bodily functions. The emotional instability of hyperthyroidism and the sloth and irresolution of the hypothyroid subject appeared to show a direct influence of a hormone on mental processes.

Recent work(7) has tended to identify the pituitary with mental processes on account of its close association with the diencephalon which is regarded by some as the seat of the emotions, and because of its leadership of the endocrine orchestra.

The thyroid may be associated with nervous symptoms when overactive or underactive. Hyperthyroidism may follow emotional stress, but its continuance may be due to stimulus of other endocrines; for example, the suprarenals or pituitary compression of the cervical sympathetic by a fractured clavicle has caused unilateral hyperthyroidism and demonstrated a neurogenic origin of the condition, and pathological changes in its autonomic nerve supply have been associated with glandular dysfunction. Hyper-

thyroid patients are always "on edge," cannot sit still and relax, and complain of "internal tremors" and they flush and perspire easily.

Hypothyroid cases are conscious of a slight physical and mental inertia, timidity and irresolution which arouse a feeling of inadequacy - of being "no good." This may either bring on headaches with melancholia, or lead to an effort in overcompensation. The condition may follow hyperthyroidism due to emotional stress.

No direct Parathyroid connection with the neuroses is known but overaction tends to raise the blood calcium by depleting the central nervous system, and irritability, drowsiness and premature fatigue follow. The metabolic changes subsequent to parathyroidectomy suggest a connection with the autonomic nervous system.

The Pituitary has no direct association with the neuroses, but its effect on growth and development when disordered as in Fröhlich's Syndrome and Acromegaly must have important psychological bearings.

The Pancreas may be affected by emotional stress and produce a transient glycosuria, while nervous upset is generally regarded as injurious to cases of diabetes mellitus.

The Adrenal Glands are closely bound up with the sympathetic nervous system, the effects of which can be imitated by adrenalin.

Patients with Addison's Disease suffer from depression, irritability and mental retardation due probably to a combined effect of poor circulation from the low blood pressure and a reaction to the realisation of the seriousness of their condition as evidenced by their extreme weakness.

Gonadal deficiency leads to surprisingly slight mental change in comparison with the physical alteration, but there is a lack of courage and ambition, and a tendency to seclusiveness. The inferiority complex of the impotent man, however, is probably a pure psychic and not an endocrine defect.

The ovary must have a close association with the autonomic nervous system because of the vasomotor and metabolic upsets at the menopause, and during pregnancy and the puerperium. That the symptoms of the menopause are not all explained by loss of ovarian hormone is proved by the great number of women who escape them. Undoubtedly they are more liable to psychic upset, if they have not settled the problem of advancing years on a sensible basis. The unfortunate woman regards herself as having outlived the end for which she was created and frets at the passing of

what she regards as the useful period of her life. If she is wise she accepts it gracefully and relives her youth in the lives of her children or other young people.

METABOLIC.

Modern blood chemistry research has explained several conditions previously thought to be neurotic. Alkalosis increases neuro-muscular irritability and causes paraesthesiae. A true acidosis only occurs in diabetic coma, but diminutions in the alkali reserve are associated with vagotonia and gastric hyperacidity. Alkalosis is associated with sympathetico-tonic conditions and changes in the blood chemistry modify the autonomic balance and vice versa. This acid-base balance and autonomic balance are both liable to modification by emotional stimulation and may result in a chronic fixation of an abnormal autonomic balance.

Fear, anxiety and other emotions tend, if their action is continuous or severe, to exhaust the suprarenals or at least to impair their function. The carbohydrate reserves become exhausted and the blood-sugar falls because of failure to mobilise carbohydrate. Spontaneous recovery may occur as the suprarenals regain strength.

A personal investigation into the diets of neurotic

patients reveals a very pronounced fondness for carbohydrates in general and sugar and sweets in particular, and a less pronounced dislike for fats. Is this a mechanism of Nature to build up carbohydrate reserves?

Cyclical vomiting and asthma, two conditions related to autonomic imbalance and to disordered metabolism, are both worse at night, suggesting that possibly they occur during a period of physiological starvation, and both are benefited by glucose and sodium bicarbonate at night

TOXIC.

The relation of the neuroses to infection is a complex one. Many neurotics have no apparent septic focus, and many who must be soaked in toxins show no sign of a neurosis. An attempt was made to estimate the proportion of neurotics in which a septic focus could be demonstrated. One hundred consecutive adult cases of neurosis were analysed and compared with a similar number of controls, but it was felt that the results did not come up to accepted standards of statistical accuracy. Almost 100% of neurotics complain of disordered bowel function, usually constipation. Is this to be held to be a toxic focus? Dental sepsis in some form or another was present in 85% of neurotics, and 90% of the controls, but the extent was slight in a big proportion and its significance doubtful.

Tonsils were enlarged in 6% of neurotics and in 10% of controls, but red and unhealthy in another 6% of neurotics. The neurotic patients seemed more susceptible to naso-pharyngeal catarrh, particularly of a vaso-motor type. There were six cases of vaso-motor rhinitis. A mild degree of infection of the accessory nasal sinuses or a comparatively recent history suggestive of it was obtained in fifteen cases. The sinuses affected

were the frontal sinuses in six cases, the posterior (sphenoidal) sinuses in four cases, and the maxillary sinuses in five instances. These infections seem more potent in the production of neuroses than the others cited, for the accompanying headache, listlessness and depression is more liable to cause morbid reflection and suggest serious disease.

The most important infection in relation to the neuroses in my experience is tuberculosis. The symptoms and general signs have very much in common -- loss of weight, pallor, anorexia, dyspepsia, cough (often slight) and a soft rapid pulse. The manifestations of both are in my opinion produced by sympathetic stimulation and it is most important to differentiate them. So far I have found it is more common to mistake a neurosis for a case of tuberculosis than the converse. A useful differentiating point is the haemoglobin test, which is usually lower in tuberculosis than in the neurosis where the pallor is largely vasomotor, and deceptive. A thorough clinical and radiological examination is necessary, and in the case of young people a tuberculin test may be helpful.

A second reason for the association between neuroses and tuberculosis is the frequency of neurotic symptoms in tubercular patients. The fears of the gravity of the disease, the prolonged

course, the stigma which still clings to it in the lay mind, all tend to precipitate a nervous breakdown, which may take the form of severe breakdown or paradoxically of pronounced euphoria (the well-known spes phthisica).

Influenza and pneumonia are other infections which are associated with neurotic symptoms, mostly those of fatigue and depression, but their course is usually short.

The position of the relationship of infection to the neuroses may be summed up by saying that trivial infections may produce unduly severe reactions in neurotic subjects, and that trivial psychic traumata may similarly cause severe reactions in a mental soil sensitised by persistent infection.

# Part III.

# THE MANIFESTATIONS OF NEUROSIS.

NERVOUS MANIFESTATIONS.

Life is a series of reactions to environment. Continuously sensations are being carried to our central nervous systems by afferent nerves. To some, such as light, sound and skin touch, we have a low threshold of consciousness. To others, such as visceral sensations, we are normally oblivious , but if these sensations are increased in intensity due to disease, or our threshold of awareness is lowered, we become aware of abnormal or even of normal functioning of our internal organs. The reactions to these normally unconscious stimuli are effected through the autonomic and endocrine systems, just as voluntary reactions are effected through the neuro-muscular systems. Most of our internal organs are supplied by the sympathetic and the parasympathetic nervous systems which act antagonistically. Their centres are in the sympathetic chain, the spinal cord and the sub-thalamic portions of the brain. When the viscera are functioning normally other viscera are stimulated by the autonomic or endocrine systems to work in harmony with them, as for example, the stomach, duodenum and liver.

If the individual's attention is fixed on an organ or the

centres serving it have been rendered hyperirritable by excessive stimulation the sensations may reach consciousness and by similar paths conscious or subconscious efferent stimuli may reach the organs and modify their functions. As there is only one route from each organ it holds that sensations in consciousness of gastric disease will be the same whether they originated in an organic lesion of the stomach wall, or in the cortex of the person who feared the disease, though they may vary in intensity and duration.

Painful sensations from a viscus are referred along afferent paths to an area of skin or muscle connected with the same segment of the cord as the viscus. Conversely cutaneous stimulation may affect viscera connected with the same segment of cord as the stimulated area, hence the value of counter irritation.

Eppinger and Hess formulated a conception of conditions of vagotonia and sympatheticotonia which are hyperirritable to vagal and sympathetic stimulation. These conditions are of interest in the psychoneuroses, but the relationship is not as simple as was once thought, as pure vagotonia or sympatheticotonia is uncommon. Vagotonia is associated with a shift of the acid-base balance towards the acid side, and alkalosis is

associated with sympatheticotonia. The dominant symptoms of many diseases such as the febrile chill of infection are, in part, reactions of autonomic ganglia, hence the importance of these conditions in the understanding of disease processes is obvious.

EMOTIONAL MANIFESTATIONS.

An emotion is the mental state or feeling which accompanies an instinct, that is, a tendency to act in a particular way to a given stimulus. The character of the emotion depends on somatic and visceral changes produced reflexly and involuntarily, probably in the diencephalon. We are only aware of them when they reach the cortex. The primitive instincts have their own specific emotions; flight and fear, fight and rage. The perception of danger calls forth the impulse to flee, certain somatic and visceral changes ensue, and when we are aware of them we are afraid. The emotions thus resemble conditioned reflexes and produce changes through the autonomic and endocrine systems. Thus the emotions are not controlled by the will, but only modifiable by it. The emotions of animals or primitive men are simple and are responses to stimuli connected with physical safety and daily needs. Civilised man's needs are more social and economic and so his emotions are more complex. His somatic visceral reactions remain the same, but the emotions find no outlet in fight or flight. They serve no useful purpose and by continued action may produce organic disease.

The emotions stage their performance on a subthalamic level. A man probably strikes first and thinks later. In all psychoneurotic states hyperirritability is the rule. Normally unconscious afferent stimuli become conscious and faint stimuli become intense. During emotional stress the normal cortical efferent inhibitions fail and the somatic and visceral influences of the emotions are greatly exaggerated and pallor, sweating, muscular, blood, and endocrine changes ensue. Through the action of adrenalin these manifestations continue after the emotion has ceased, as shown by Cannon(19).

For this reason civilised man should refrain from allowing full play to the emotions and avoid exercising any function which is emotionally inhibited. As emotions diminish alimentary functions, meals should only be taken when the mind is at peace. When these visceral manifestations are present in consciousness reflection on them occurs, suggests the presence of organic disease, increases the emotional upset which aggravates the visceral changes, and so a vicious cycle is established. By the means of conditioned reflexes the emotional upset can be displaced by a set of stimuli originally or subsequently associated with the onset of symptoms, and so the real cause becomes masked.

The true neurotics suffer from distortion of primary instincts

and emotions; self preservation, sex instincts, the love of power, and love of comfort and security, and find subjective expression in fear, anxiety, worry and the visceral manifestations which come in their train. Memory for recent events is impaired because concentration is poor.

There is generalised irritability to all sensory stimuli, such as auditory hyperaesthesia. The feeling of anxious expectation is a floating mass of anxiety ready to fix on any appropriate idea. The anxiety attacks may not be related to any conscious idea, and affect the somatic and visceral systems.

The psychoneuroses are best divided into neurasthenia, anxiety states, hysteria, and obsessive-compulsive states. Their aetiology has already been discussed.

The neurasthenic suffers from physical and mental exhaustion from continued mental upset allied to physical inferiority. The occurrence of conflict is almost universal, and the symptoms persist as long as the conflict, though the emphasis has been changed from the original situation to the physical effects. The anxiety states arise from conflict of individual needs with reality, and the symptoms are the result of emotional perturbation on organic function. The contemplation is thus changed from a material difficulty to a less responsible problem - his

own health.

The hysteric is free from anxiety for he has solved his conflict by converting it into a physical manifestation without a structural change. There may also be episodic mental states due to dissociation of consciousness, such as fugues, somnambulisms, and double personalities.

In the obsessive-compulsive states the individual crowds undesirable thoughts and feelings from consciousness by occupying his mind with a repeated thought or act.

# ALIMENTARY MANIFESTATIONS.

Of all the systems of the body, the alimentary system presents the most spectacular picture of neurotic dysfunction. The manifestations are both subjective and objective, among the former being anorexia, nausea, a feeling of distension, discomfort, or actual pain, and dysphagia. The objective manifestations include vomiting, eructations, constipation, diarrhoea, dryness of the mouth, hyperacidity, hypoacidity and achylia.

Many gastric symptoms are purely psychogenic, as the anorexia of fear states; some are neurogenic, as the gastric crises of tabes dorsalis; many are reflexly produced, such as those of migraine, or associated with disease of the gall bladder, appendix, etc.

The effects of emotions on gastric functions are very pronounced. Fear may inhibit secretion and motility of both stomach, bowel, and associated glands, and through them upset remote systems of the body. It has been said that of ten patients with gastric symptoms, one has gastric disease, three have emotional instability, and six have lesions which upset the stomach reflexly.

Each symptom is produced by the same mechanism whatever the cause, impulses travelling along afferent sensory fibres and any response being dependent upon the irritability of the autonomic nerve supply.

The normal gastric mucosa is devoid of tactile and pain sense, and temperature sense is a matter of dispute. Chemicals such as alcohol, condiments and strong acids, only produce sensation of pain if they damage the mucosa or it has been previously injured.

Loss of appetite is the commonest neurotic symptom. Appetite depends on gentle chemical stimuli of the mucosa, and is largely regulated by habit. If emotional states are not interested in food appetite may remain absent for days, but there is some evidence that the sensation of hunger may be initiated by a depletion of nutrient material in the blood and abolished by subcutaneous injection of nourishment.

The appetite of neurotic patients is very capricious. One commonly finds that they feel hungry before a meal, but find that the sensation vanishes after a very small quantity of food. Investigation by X-Ray and clinical methods shows there are two types in which this is found -- a type with small contracted stomachs which give the sensation of hunger but can only admit

a small quantity of food. The other type have large lax stomachs containing gas. When food is swallowed contractions are initiated, the gas is displaced to the fundus giving a feeling of fullness, and eructation slowly proceeds and quickly gives place to a renewed feeling of hunger shortly after the meal is finished. The first type tends to normal acidity and the second type rather below.

Nausea is a complex sensation distinctly referable to the stomach, and is not constantly associated with vomiting. It may be due to direct stimulus of the gastric mucosa by improper food or to reflex stimulation by other organs. It is frequently psychic in origin, due to a conditioned reflex dating from some disagreeable incident, usually forgotten.

Vomiting - its logical sequel - is a complex motor act, and implies rejection of unsuitable stomach contents, if directly produced. If indirectly produced by psychic means it may have a similar symbolic meaning - the rejection of something unpleasant - and probably dates from an early mechanism when all organs not required for fight or flight were put out of action.

A feeling of distension or discomfort is almost always due to flatulence. This is now recognised to be the result of aerophagy. All neurotics, if carefully watched, can be seen to swallow

wind. The stomach is always of poor tone, as I have repeatedly proved by simple means. While engaged in belching wind I have persuaded the patients to drink a tumbler of water. Inducing vomiting by tickling the posterior pharynx thereafter always results in discharge of gas only.

Probably a small amount of gas is due to fermentation owing to stasis and secretory dysfunction.

If the discomfort amounts to actual persistent pain, especially if accompanied by tenderness, it is well to regard the condition as substantially organic and not neurotic.

Dysphagia may be referred to the upper or lower end of the tract leading from the mouth to the stomach. Those referable to the upper end include fairly obvious organic causes such as "quinsies," diphtheritic paralysis, and carcinoma of the upper end of the oesophagus. Psychic causes are not common, except the absence of saliva due to fear which renders the bolus difficult to manage. In the lower half of this tract the organic lesions are limited to carcinoma, fibrosis following caustics, syphilis and mediastinal pressure, for example, by aneurysm. Functional lesions are represented by cardiospasm, or more properly "Achalasia of the cardia." This is finally produced by autonomic imbalance of the sympathetic innervation. The food

accumulates in the oesophagus which is found to be greatly dilated, and the column of accumulated contents forces a small quantity through into the stomach. Occasionally the condition is reflexly caused by disease of the fundus of the stomach, or by inflammation or tumour involvement of the oesophageal wall.

Secretory dysfunctions are fairly common in the neuroses. Facilities for carrying out gastric analyses have been limited, but the results showed considerable divergence, varying from almost complete achylia to hyperacidity. Achylia, or hypoacidity, in my cases was predominantly associated with nasal and pharyngeal catarrh. The patients swallowed large quantities of mucus which inhibited secretion of gastric juice. Hypoacidity was commoner in the florid fulsome type of case and the pale broadly built type, whereas of the angular, active, worrying type of patient, hyperacidity was present in most.

An investigation was carried out to determine the diurnal variations of gastric secretion in the same patients. The results were variable but showed a tendency to hyperacidity in the morning with gradual diminution in the acid curve throughout the day. Each meal raised the curve temporarily, but not to the same level as the previous meal. A suggested explanation is increasing predominance of the sympathetic over the parasympathetic in response to the stresses of the day, with recovery

during sleep. The acid curve was at its highest about three a.m., which is interesting in view of the tendency of duodenal ulcer to cause symptoms about this time.

Motor dysfunctions of the alimentary tract take the form of spasm and achalasia of sphincters, and increased, diminished, and reversed peristalsis of the stomach and bowel. Pylorospasm may be the result of reflex action, as in the case of appendix or gall bladder disease, or may be psychogenic. There may be spasm or achalasia of any of the sphincters along the alimentary tract and in all cases this is associated with decreased peristalsis. Whether the cause is a local or reflex organic lesion, or is psychogenic, the mechanism can be explained by autonomic imbalance.

The parasympathetic nerve supply stimulates peristalsis and relaxation of sphincters. The sympathetic nerve supply has the opposite effect - decreased peristalsis and spasm or achalasia of sphincters.

Chronic constipation has a varied aetiology, and is important as both a result of and an accessory to the production of psychoneurotic states. In cases of doubt thorough X-Ray examination of the alimentary tract is desirable, as I have seen several cases where obvious neurotic symptoms masked a malignant

growth until it was too late.

There are four types of chronic constipation which should be distinguished:

a) an ascending caecal type, usually associated with lesions of the appendix or gall bladder,

b) an atonic type, usually of psychoneurotic origin, where, twenty four hours after a barium meal, the whole colon can be visualised, with the transverse colon usually in the pelvis.

c) a spastic type, seen in cases of vagotonia, and also related to group (a) and lastly

d) a rectal type, due to faulty and careless habits where the stimulus to defaecate is ignored until the rectum becomes anaesthetic to contents and the desire to defaecate does not arise. This frequently springs from a feeling of disgust towards the function, thereby inhibiting it.

Megacolon, or Hirschprung's Disease, is the same condition affecting adults and children. The colon becomes greatly dilated and hypertrophied though there is no organic obstruction. There is achalasia of the pelvi-rectal or anal sphincters in children, and of the anal only in adults. The dilatation affects the rectum and/or pelvic colon, and varying lengths of the large bowel, but the pelvic colon is always most affected. The principal feature

is most obstinate constipation dating from birth in Hirschprung's Disease. Drugs lose all effect and the abdomen becomes tumid from gaseous and faecal distension, and chest pressure symptoms appear. Death usually occurs between three years and eight years, but survival to adult life occurs. It is eight times more common in boys than girls. Adult cases may be cases of Hirschprung's Disease which have remained latent or are due to late development of anal achalasia.

Diarrhoea may occur as a neurotic manifestation in several ways. It often accompanies an anxiety state or a harrowing experience and is probably allied to the condition known as "vasovagal syncope." There is overaction of the parasympathetic with rapid emptying of bowel contents. A similar mechanism prompts certain people only to have a bowel action when it is most inconvenient. A second type is where mucus is passed along with hard scybala, and is probably a defence mechanism on the part of the bowel wall to protect itself against ulceration by constipated bowel contents. A true mucous colitis is the passage of mucus with shreds of membrane and is regarded by some as a "secretion neurosis."

# CIRCULATORY MANIFESTATIONS.

The circulatory manifestations of the neuroses comprise palpitation, tachycardia, giddiness, precordial pain, and sensation of choking, alterations in blood pressure and vasomotor upsets. They are very prominantly associated with neurotic syndromes because the circulatory system is very susceptible to emotional and nervous stimuli, and because any symptoms related to the heart are particularly liable to arouse the emotion of fear.

The fear of heart and arterial disease is the basis of many a phobia, and a cardiac neurosis is easily caused by a thoughtless remark by a doctor during his examination, and cardiovascular reflexes of emotional origin may have serious or fatal consequences. Emotional disturbance causes upset of the autonomic balance in the sino-auricular node. Fear and surprise may cause tachycardia, while bradycardia is sometimes found in anxiety states. Tachycardia may be due to simple nerve action or via blood changes due to increase of adrenalin or thyroxin.

Idiopathic paroxysmal tachycardia is a condition in which the heart rate is suddenly doubled or trebled. The condition

ceases abruptly and the heart is normal between attacks. Exercise and emotional upset are the commonest precipitating factors.

Palpitation is merely consciousness of the action of the heart and is common in neurotic conditions because emotional stress increases the rate and force of the myocardial contractions and renders the nervous system more irritable to afferent stimuli. A common aggravating cause is gas in the fundus of the stomach

Giddiness, which is not rotatory, is a frequent symptom in the neuroses, and may be a prelude to a faint. The attack is vasovagal in origin, and is accompanied by a low blood pressure due to splanchnic dilatation, and a slow pulse due to parasympathetic predominance, abolished by atropine.

Precordial pain is comparatively rare in serious organic heart disease, but is common in neurotic affections. It is very important to differentiate the pain of functional cardiac lesions from organic conditions, especially angina pectoris. The age of the patient, the intensity and distribution of the pain, its relation to effort and other signs of arterial degeneration, usually make the distinction easy. There is some evidence, however, that the production of the symptom is similar in angina pectoris

and in neurotic heart affections. Angina pectoris occurs predominantly in professional men and emotional states are powerful precipitating factors. Reflex phenomena such as vasomotor upsets and changes in pulse rate and blood pressure become more pronounced as the disease progresses, whereas most neurotic symptoms decrease as the organic condition gets worse. Also the relief which frequently follows the swallowing of a nitroglycerine tablet is suspiciously quick.

"Pseudo angina" occurs in two forms, (a) as a stabbing or continually sore precordial pain in fatigue, irritable chronic female invalids, not related to effort, and as (b) an attack of pain which wakes the patient, usually a woman, from sleep, and is thought to be a subconscious anxiety state, the spasm being suggested as an equivalent of an orgasm.

Strong emotions may cause chest pains by a sudden release of adrenalin into the blood, the subcutaneous injection of which causes a sense of constriction or pain in the chest.

Behaviour disorders may be associated with organic heart lesions, especially in children, where activities have been restricted. Suggestion of cardiac disease may initiate a life of invalidism with cardiac pains out of all proportion to other findings.

The Blood Pressure is very variable in the neuroses, both in different patients and in the same patient at different times. If a reading is taken and the armlet deflated and left in position and a subsequent reading taken, the systolic pressure is frequently found to be 25 - 30 mm. lower. The lability of the blood pressure in anxiety neurotics has been commented on by Barton Hall[21].

The systolic pressure is always, in my experience, much more affected than the diastolic. I find it quite common to record a systolic reading of 180 mm. with a diastolic of 100 - 110 mm. which after a few days' rest of body and mind drops to normal limits. If it does not drop within two to three days of real physical and mental rest I find it rarely drops at all. These cases have endured prolonged emotional strain, the nursing of loved ones particularly, and the pressure reaction has become fixed from prolonged thyroid and adrenalin stimulation. There is little doubt that the condition is due to sympathetic overaction. When it persists secondary changes in the blood vessels take place, and the diastolic pressure rises considerably.

I saw recently an interesting illustration of the relationship between organic and functional hyperpiesia. I was taking the blood pressure of a woman of seventy-eight with advanced arterial degeneration and retinal haemorrhages. Her daughter, aged

forty, a neurotic of many years' standing, with marked visceroptosis, asked out of curiosity to have her blood pressure estimated. Both systolic and diastolic readings were within five millimetres of the mother's at 180/140.

Donnison[22] has stressed the emotional factor in the cause of hyperpiesia. Repeated emotional stress, the induction of Cannon's Emergency Reaction, and the absence of relief through physical struggle, is suggested as the mechanism involved.

Vasomotor upsets are also found in the neuroses. In my series the commonest were Vasomotor Rhinitis or Spasmodic Rhinorrhoea, and "dead fingers." The former complaint consists of a sudden blocking of the nostrils by engorgement of the turbinates followed by a copious mucoid secretion. An attack is precipitated by slight changes of temperature, such as going from one room to another, or washing the face, and it becomes involved in emotional factors and tends to break out whenever it is particularly unwanted. The occurrence of "dead fingers" is uncommon before puberty, and is not necessarily related to cold. It may occur several times in one day, but if not organic never leads to gangrene. Its sympathetic action is shown by the extreme dilatation which occurs if the sympathetic is paralysed by immersing the hands in hot water. It is of interest as suggesting the possibility of similar occurrences in less apparent regions

of the body, explaining the occurrence of pseudo angina, gastralgia, etc.

A common feature of the neuroses on which I am not aware of stress being laid is the persistence of sinus arrhythmia. It is associated with bradycardia in some cases, but is also associated with a normal or even raised pulse rate, though it is abolished by exercise or emotion. It is probably a vagotonic phenomenon.

LOCOMOTOR MANIFESTATIONS.

Generally speaking, the muscular movements of neurotics are slow in commencing, sudden and imperfectly regulated when under way, and not well co-ordinated. The question of posture has already been dealt with, and it was stressed that faulty posture was dependent upon poor muscle tone. As posture is the basis of movement, all movements beginning and ending in it, it stands to reason that movement must be faulty in the neuroses. There is a delay in initiating the movement because the "slack" of poor muscle tone has to be taken in and the full force of the motor impulse is then thrown suddenly on to the muscle, so that movement is sudden and jerky. Neurotics lack poise. They walk awkwardly, either apologetically or arrogantly, stand faultily, sagging at the knees and in the abdomen, and they positively lounge when sitting. They take the path of least resistance.

More particular neurotic disturbances are the tremors, the spasms, the tics and the occupational neuroses. I have strangely had only one of these in my series, a generalised tremor worst in the hands, in a "shell-shocked" soldier with marked hyperthyroidism. The condition is always worse when he comes for

his certificate than when he is encountered in the street. His blood pressure is 250/170, and the recording of it brings on a deathly pallor and generalised twitching.

The occupational neuroses are especially interesting. They consist of such disabilities as writers' and typists' cramps, telephonists' laryngitis, bowlers' arm, and sometimes "tennis elbow." They are a means of escape from a difficult situation. No other movement involving the same muscles is affected. There is usually some emotional cause such as grievance against an employer, and often a realisation of the fact that they are below the average in efficiency.

# RESPIRATORY MANIFESTATIONS.

There are many points of contact between the neuroses and the respiratory system, Neurotic respiratory symptoms occur, such as tachypnoea, paroxysmal hiccough, hysterical cough, etc. One feature which I have noticed not previously recorded to my knowledge is the tendency for respiration to diminish or even to cease entirely for a considerable number of seconds if the attention of a neurotic is directed to a feature of special interest. Neurotics tend to lose the subconscious ease which characterises skilled functions and this seems to be a phase of that fault. It is also probably related to the alkalosis which accompanies sympathetico-tonic anxiety states.

The emotional reactions of a patient are very important in such respiratory diseases as tuberculosis and pneunomia, and conversely the presence of these diseases or the fear of them are frequent and powerful factors in producing a psycho-neurosis. Phthisiophobia is probably the most difficult differential diagnosis to make from pulmonary tuberculosis. Asthma, as an allergic disease, is closely related to the autonomic system and therefore to the neuroses, and the facility with which an

attack can be brought on by reference to a supposed exciting cause, and the equal facility with which it can be abolished in a period too short for pharmacological action, point to a powerful emotional factor in many cases of asthma.

# GENITO-URINARY MANIFESTATIONS.

Genito-urinary manifestations of the neuroses consist of disturbances of micturition and menstruation and psychoneuroses centred round disease or abnormal development of the sex organs whether actual or feared. The inability to pass urine in the presence of others, and the frequency during emotional stress, are facts of everyday knowledge. The act of micturition is a complex one. The contraction of the bladder which expels the urine is a reaction to distension which is controlled by inhibition which is subconscious at low volumes, but becomes conscious with increasing intensity of contraction. Voluntary efforts at micturition involve a rhythmical contraction of the bladder walls under parasympathetic influence with associated relaxation of the internal sphincter and reflex relaxation of the external sphincter urethrae. Contraction of the abdominal wall and bowel, and relaxation of the perineum are associated mechanisms. The action of the sympathetic is feeble(24).

In neurotic children enuresis is common. When all known local causes have been eliminated there remain cases which are purely or predominantly nervous. About 60% of these, in my

opinion, are vagotonic and the others are sympathetico-tonic. The former have a small contracted bladder necessitating frequent voiding. The latter are unable to empty their bladders, as shown by residual urine on catheterisation after micturition, and may actually have an overflow incontinence. The vagotonics are benefited by ephedrine and the others by acetyl-choline.

Disease of the prostate or external genitalia is very apt to result in morbid speculation and development of a neurosis. Mal-development in a person with a faulty attitude towards sex life leads often to personality fixation at the genital level, particularly in boys, and in adults any mal-development or disease such as atrophy after mumps is apt to result in severe depression.

Menstruation is largely out of nervous control, but in psychoneurotic states there is often a lowered threshold for all pelvic sensations which may aggravate neurotic symptoms.

The menopause is well known as a "bad age" when any neurotic symptoms present are liable to be accentuated. The cause is frequently a desire to convince herself that she is not growing old and sometimes finds expression in excessive sexual activity.

Part IV.

# SELECTED CASE RECORDS.

CASES OF PYLORIC SPASM.

Case I. M.S. aet. 1 month. (female).

This baby was brought with a complaint of persistent screaming day and night, vomiting, failure to be satisfied with food, and loss of weight.

Duration - since birth.

Family History - Father aet. 27, a railway clerk, mentally and physically healthy. The mother, aet. 35, was a very neurotic woman. She had married at the age of 28, was extremely anxious to have a child from the start. Three years elapsed before a pregnancy occurred. When it did, miscarriage took place at two months without apparent physical cause. Two years elapsed before a second pregnancy occurred and it ended in miscarriage at three months, for no apparent reason. Two years later a third pregnancy occurred, and was characterised by extreme neurotic symptoms. There was excessive vomiting from the first to the fourth months, miscarriage was threatened on several occasions, and the mother passed the nine months in a constant state of dread lest the pregnancy should end prematurely. There was no history of tuberculosis, syphilis or rheumatism, but the maternal grandmother

was a very excitable fussy person.

Past History - Labour was long and difficult and delivery by forceps at full term. Weight at birth was 8. lb. 1 oz. Feeding was by breast and supplementary feeding, but the baby was taken off the breast at two weeks as the mother said she had not enough milk and what she had disagreed with the child. A modified milk feed was substituted.

Present History - The mother says the child screams for hours on end, day and night, and is only quiet when feeding. She appears to be in pain before and during the passage of stools, but relieved thereafter. She gulps her food at a great rate and is promptly sick. She has lost 1 lb. 3 oz. since birth.

Examination - The child is small and poorly nourished. The skin is lax and is covered with an erythematous desquamating rash. She gulps food and is an obvious air-sucker. The abdomen is distended and tympanitic, and generally tender but not resistant. The Wassermann Reaction was negative. The child was not in the least fretful in hospital and treatment consisted of the same diet as at home and the prevention of air swallowing. She gained three pounds in weight and was then discharged.

She was re-admitted four weeks later with complaints of

vomiting, constipation, and fretfulness which recommenced immediately after return home. Vomiting occurs at any time up to one hour after feeds, and consists of thick curds. Bowels are very costive, intervals between motions being two days. Stools are small, hard and lumpy and aperients have no effect.

Examination - Her extremities were pale and slight cyanosed and her general temperature was low; so much so that suppositories tried for constipation would not melt. She was emaciated, ill and dehydrated, and very fretful, with a short dry cough. The tongue was dry and slightly furred. The abdomen was tumid but less so than before, with slight generalised resistance, easily overcome, and hyper-resonant. The pulse was rapid, and "thready." She had lost 1 lb. 3 oz. since discharge. X-Ray examination showed gastric retention up to two and a half hours. A barium enema showed a generalised loss of tone with increased capacity throughout the whole colon.

Treatment - Radiant heat and subcutaneous salines were given at first, and she was put on full lactic acid milk.

Progress - She had no projectile vomit or visible peristalsis while in hospital. Vomiting quickly ceased, she became peaceful and happy and gained 1 lb. 4 oz. The mother was advised about psychological management, particularly not to fuss so much over

her and to prohibit the grandmother's interference which was pronounced. The progress was maintained at home and when last seen one year later she was well and happy.

Commentary - The important aetiological factor in this case seems to be the morbid mental heredity and environment. The continuous ante-natal worry with threatened abortion must have a deleterious effect on the child. The early gastric symptoms were due to faulty feeding. The lack of milk was almost certainly psychogenic as the mother drank plenty of milk and her breasts were well-developed, and the feeds were changed frequently. The whole atmosphere about the child was one of fuss and worry, and there was considerable tension at home over the grandmother's presence and domination. The condition was one of pyloric spasm and the apparent presence of a similar condition of muscular atony and sphincter contraction or achalasia in the bowel suggests that it was autonomically produced. The circulatory findings were also characteristic of sympathetic overaction.

Improvement was rapid on simple food modifications in hospital environment. No drugs were used. Relapse occurred as soon as she returned to the morbid environment, and improvement set in when she again left it. Physical and mental amelioration went hand in hand and adjustment of the home environment maintained the progress made in hospital.

Case II. J.D. Aet 11 weeks. (Female).

Complaint - Not thriving.

Duration - Since birth.

Family History - Mother, aged 27, has tuberculous knee joint. Father alive and healthy - no other children.

Past History - The mother was very unwell during pregnancy and the puerperium, with severe cough, sputum and headaches. She had a normal delivery at full term and the baby weighed 7 lb. at birth. The child was breast fed until three weeks old and was then weaned on account of the mother's health and put on a mixture of Grade A. milk and water.

Present Illness - The baby has never thriven since birth, but no definite symptoms were noticed until she was weaned. She now vomits ten to fifteen minutes after every meal and the vomit is frequently projectile. At first it consisted of curdled milk but the milk is now vomited unchanged. She is very constipated but is not fretful and sleeps well.

Examination - The child is of average development but poor nutrition. There is marked evidence of wasting. The thorax and abdomen are of normal shape. There is no evidence of rickets,

syphilis or tuberculosis. The child is very alert and fretful but not toxic. Temperature on admission was 98.8° F., pulse 136 per minute, and respiration 38 per minute. Her appetite was keen and thirst was especially marked. Immediately after food she had slightly projectile vomit of slightly curdled milk. The tongue was moist with a slight coating of white fur. The abdomen was not distended but the recti were separated and the outline of the stomach in spasm could be seen, though no peristaltic waves were visible. On gastric lavage a residue of curdled milk was obtained three hours after a feed. The pulse remained rapid and soft - about 136 per minute. There was slight cranial bossing and the fontanelle was small, being 1 in. by 1 in. The child was a definite air-sucker, appeared nervous and slept badly. She lay with a far-away thoughtful expression suggestive of meningitis and had intermittent head retraction - Kernig's sign was negative and the fontanelle was normal. A barium series showed gastric retention up to three hours after meals. Von Pirquet Reaction was negative.

Treatment - At first feeds of citrated milk were given, but sometimes were unalleviated. The baby became collapsed and subcutaneous salines had to be given and she revived. Vomiting continued but varied in time of onset from immediately after to one hour after feeds. No peristaltic waves were ever

seen. Atropine gr. 1/320 was given by injection fifteen minutes before a meal and symptoms were relieved. After one week the atropine was stopped and thickened Benger's feeds were given. Weight was gained fairly steadily and she was sent home. She was re-admitted ten weeks later with symptoms as before. Thinner feeds had been tried at home because of expense and symptoms continued in hospital while on thin feeds. Lavage and X-Ray examination revealed gastric retention as before. She was put on thick feeds of Farola and symptoms were at once alleviated, weight being gained. X-Ray examination now showed no retention. There was a decided change in the child's disposition and she was bright and happy on discharge. She has not been seen or heard of since, so presumably has not relapsed.

Commentary - The mother of this child had an active tuberculous lesion. The close way in which the symptoms and signs of tuberculous toxaemia mimic those of sympathetic stimulation has already been commented on. Is it possible that the child became sensitised to tubercular toxin and therefore to sympathetic stimulation during intra-uterine life, and was therefore more liable to autonomic nerve upset? The findings suggest a sympathetico-tonic state alternating with mild vagotonia, the first evidenced by the gastric retention, and the second by the spasm of the stomach without visible peristaltic waves. It is doubtful

if the atropine effect was real or coincident. It appeared that the food consistence was of greater importance. The parallel improvement in mental and physical conditions was again marked.

Case III. B.S. Aet. 10 $^{8}/_{12}$ years. (Female).

Complaint - Vomiting.

Duration - 7 weeks.

Family History - Father and mother both alive and healthy. The father had been out of work for two years and home comforts were temporarily scanty. The patient was the second in the family of four children.

Past History - She had been a full-term, healthy, bottle-fed baby. Development was normal and she had had no previous illnesses of note. She was emotionally unstable, usually bright and boisterous, but always nervous and easily upset. Her appetite was always good and her bowels costive.

Present History - Seven weeks prior to coming under observation she was bitten by a dog and got a severe fright. She was further upset by an accident to a playmate on the following day. Since then she had been sleeping badly and had night terrors. She began to vomit ten minutes after every meal and continued in this way for four weeks. She improved for ten days but the symptoms returned with increased severity. She had no pain or other digestive symptoms.

The bowels had been very costive since illness began, and she was noticed to be unsteady on her feet. She had no fits or other choreic manifestations, and was very easily exhausted.

Examination - She was tall and thin with a long neck and narrow costal angle. She looked alert and intelligent, but moved awkwardly and drooped at the shoulders. The skin was harsh and dry, with yellowish-brown pigment scattered over the skin of the trunk. She had a lateral squint of many years' duration. The abdomen was flat and resistant, and numerous masses were palpable in the bowel. The tongue was dry and furred and she had several carious teeth. The tonsils were healthy.

X-Ray examination revealed gastric retention at three and a half hours. She was given Ol. Ricin. and enemata with copious results, but she cried continuously to be allowed home.

Commentary - This is another case of pyloric spasm related to two factors, profound emotional upsets following psychic traumata, and extreme constipation. The premature termination of treatment was unfortunate. Her Von Pirquet Reaction was positive to Bovine T. B. She gave an exaggerated response to the injection of adrenalin, the pulse rate rising to 160 per minute, and the blood pressure from 96/60 to 140/80 mm.

Case IV. R.S. Aet 5. (Male).

Complaint - Vomiting and loss of appetite.

Duration - 8 weeks.

Family History - Father and mother both alive and well. The mother was a very nervous, excitable woman, and the father was a placid "ne'er-do-well." He has been out of work for over a year and was content to sponge on two wealthy aunts with whom they were living. There was one other child aet. 2 years.

Past History - The patient had always been a delicate child, pale and subject to frequent catarrhs. The first occasion on which the symptoms of anorexia and vomiting appeared was shortly after the birth of his little sister, when, for the first time in his life, he was punished for misbehaviour. He vomited after food and refused meals for two days. His mother was greatly upset and had abstained from further correction for about a year. A similar attack followed another punitive episode, and had quite convinced the mother that he must never be punished again.

Present History - Eight weeks before being seen he was involved in a slight car accident and was terrified. He had attacks of vomiting persisting for several days, and then continued to occur if he had any emotional upset. An attack was

apparently precipitated by excitement over sending Christmas cards.

Examination - revealed a very thin pale boy of good development. Teeth, tongue and tonsils were healthy, but the abdomen was tumid in its upper part. Definite splashing was audible and the stomach on percussion was dilated and reaching well below the umbilicus. Constipation was marked. The boy was very shy and excitable but became quite friendly. He was not fond of other children, preferring adult society, especially that of his great-aunts, who spoiled him. There were numerous shotty glands in the posterior triangles of the neck on both sides, and his Von Pirquet Reaction was positive to Bovine T.B.

X-Ray examination showed enormous dilatation of the stomach and gastric retention up to twelve hours. The parents were anxious to consult a specialist who was of opinion that the case was one of pyloric stenosis and advised operation. I took the responsibility of advising delay to which the parents agreed. He was put on small thick meals with no drinks. Cold douches each morning and abdominal exercises were advised. The gastric secretion was hypo-acid, and so Mist. Gentian Alkaline with Nux Vomica was given before meals. Instruction in mental hygiene was given to the parents and four weeks later a further X-Ray examination showed a stomach of normal size and motility.

Commentary - This case was, in my opinion, more purely psychogenic than any of the previous cases. The very definite relationship of the onset of symptoms to the apparent loss of his supreme place in his mother's affections as evidenced by her interest in the new baby and her first attempt at corporal punishment is very suggestive. Each further attack was related to a definite psychic upset, and he undoubtedly was noticed much more and got his own way as a result.

The case illustrates the extreme departures from normal which are compatible with functional upset, and the possibility of speedy return to normal in early cases.

Case V. J.P. Aet. 12. (Male).

Complaint - Abdominal pain and nausea.

Duration - 3 months.

Family History - Nil to note.

Past History - Nil to note except Whooping Cough and Measles.

Present History - Three months previous to consultation he was seized with acute pain in the umbilical region, lasting fifteen minutes and followed by nausea and vomiting. The pain did not radiate and did not return for about six weeks, but there have been several mild attacks at shortening intervals. Pain is now in the right iliac fossa, dull and continuous with more acute spasms but no nausea or vomiting. It may come on at any hour of the day or night and wakens him occasionally. It does not appear to be related to food. His appetite is good, but he gulps his meals and will not rest after them. During attacks he becomes pale and cold.

Examination - He is a healthy well-developed intelligent and cheerful lad. There is resistance in the right iliac fossa and over the upper right rectus. Enemata gave a copious costive result. A barium meal shows a dilated stomach with a residue after six hours.

Treatment - Repeated colonic lavage was carried out and all pain and resistance disappeared, and he was discharged well.

Commentary - This case is in quite a different category from the previous cases. There is a spasm of the pylorus but it is a reflex mechanism from a loaded bowel. The definite findings and the absence of any emotional perturbation demarcate it from the other spasms reviewed previously.

Case VI. S.T. Aet. 24. (Male).

Occupation - Bank Clerk.

Complaint - Vomiting of blood.

Duration - 1 day.

Family History - Father alive and well. He is a very stern disciplinarian and had repressed the patient considerably. He had wanted a musical career but his father insisted on banking. The mother was alive but suffered from pulmonary tuberculosis, now quiescent. She took her son's part against the father, but usually had to give way. There was one other child, a girl of eighteen.

Previous History - The patient was a healthy baby and had only the usual childish illnesses. He had suffered from diurnal and nocturnal enuresis when aged eight. Since the age of sixteen he had been subject to frequent colds and attacks of indigestion with abdominal pain, but prior to the present attack had been free from symptoms for two years. He was very shy, but quite friendly with people whom he knew well. He played various games in mediocre fashion, but preferred to be a spectator and imagine himself as the idol of the crowd. He was fond of poetry, art and music and read a lot, but not banking, as he should have done. He was due to sit a banking examination and was worried

about it as he was ill-prepared. He seemed more worried about his father's displeasure if he failed, though he dreaded a fall in his own self-esteem and in the opinion of others. He also had a conflict over masturbation, and as his memory and powers of concentration were poor he feared a mental breakdown

Present Illness - One night while returning from a concert he felt sick, with a sinking feeling in the epigastrium. He fainted on reaching his lodgings and later vomited a quantity of bright red blood. He is positive he had no cough .

Examination - The patient is of medium build, thin, pale and slightly cold and clammy. The pulse is 100 per minute, and the blood pressure 130/90. Slight tenderness is present in the epigastrium and right iliac fossa. The tongue is dry and furred posteriorly. The bowel was loaded and repeated enemata were required to empty it. The gastric juice was analysed a few days later and it was found that the total hydrochloric acid was increased but the free hydrochloric acid was diminished.

X-Ray examination six weeks later showed no ulcer of the stomach or duodenum. The former was dilated and of poor tone and there was delayed emptying. The appendix was hanging in the pelvis and retained a flake of barium for seventy two hours.

The large bowel was also dilated and atonic throughout the whole length.

He had great difficulty in passing urine in bed, and had ultimately to be catheterised, when a very large quantity was withdrawn.

Progress was rapid and he was out again in four weeks. He was on alkalis at first, but he had flatulence and heartburn which disappeared when alkalis were stopped, and he improved rapidly on an acid mixture. He was also given some advice on his mental difficulties and expressed himself as feeling much better. He gained over ten pounds in weight while off work. The Von Pirquet Reaction was strongly positive to Human T.B. but no lesion was found

Commentary - This is a very interesting and complex case. There is a morbid environment in early life, several sources of conflict - about work, examinations, bad habits, etc. - and there is tuberculous infection if not disease. It is suggested that emotional causes, aggravated by severe constipation, set up a pyloric spasm, and there was a reflex flushing of the mucosa with haemorrhage, but only superficial organic damage or none at all. Subsequent observation showed him to be very liable to vasomotor disturbances such as spasmodic rhinorrhoea

and "dead fingers," and the haemorrhage may have been allied to these.

The "purpose" of the illness must not be overlooked. By means of it he avoided sitting the banking examination, and so saved his self respect without forfeiting the esteem of others. His subsequent progress has been good. He passed the examination at the next opportunity and has been free from gastric symptoms for almost two years.

Case VII. E.M. Aet. 57. (Male).

Occupation - sailor.

Complaint - Loss of energy and appetite.

Duration - 6 weeks.

Family History - Married. Wife alive and well. Had twelve children, eight of whom are alive and all well.

Past History - He had been a sailor all his life and was very easy going. He had neglected opportunities for advancement and was still an ordinary seaman, frequently sailing on the ship of which his brother was captain.

Present History - He complained of lack of energy and appetite for the past six weeks. He had no desire for food and when he took it he was troubled with flatulence which was eructed. He had slight abdominal discomfort after meals (1 hour) which soon subsided. Bowels were slightly costive.

He was sleeping badly and was having some domestic trouble. His wife was younger than himself and was fond of reproaching him with his lack of enterprise, and frequently held up his brother as an example.

Examination - He was pale and looked to have lost a little weight. The tongue was slightly furred, but there was no abdominal tenderness. Gastric analysis showed hypo-acidity and a barium meal showed a dilated atonic stomach. He was given Mist. Acid with Strychnine and was not seen again for about three months. By this time he looked ill, was very sallow, haemoglobin was 45% and the skin was harsh and more or less as before, but the abdomen was tumid and visible peristalsis was present in the left iliac fossa. The suggestion of a mass was present in the region of the pelvic colon. Laparotomy revealed an inoperable carcinoma of the pelvic colon and a colostomy was performed. He survived for three months after this.

Commentary - There are several important lessons to be learned from this case. The first is that an individual's nervous reactions should be interpreted in the light of his life history. The child is father to the man, and a man's psychosomatic reactions tend to run true to type throughout life, with variable modification. This man had never been a nervous subject previously and though there might appear to be grounds for emotional upset in some types of personality his history suggested he was not one of that type. One should be very chary of diagnosing a psychogenic disorder in an elderly person not previously subject to mental upsets.

Secondly it illustrates the need for thorough clinical and laboratory investigation in cases thought to be neurotic. If the barium meal had not been confined to the stomach it might have pointed to the pelvic colon.

Thirdly, the presence of a neurosis does not rule out an organic lesion. This man had undoubtedly a pyloric spasm with hypo-acidity which could be explained on neurotic grounds, but was equally explicable by the true condition present.

Case VIII. M.M. Aet. 26. (Female).

Occupation - Children's Nurse.

Complaint - Difficulty in swallowing.

Duration - Three months.

Family History - Nil to note.

Previous History - Her childhood had been healthy, apart from Measles and Whooping cough. She had always been pale since the menarché, and had frequent winter colds. She was subject to what had been labelled mild migraine attacks, in which headache and indigestion were the prominant features. She was of an affectionate disposition and was devoted to her charges, but given to worrying. She had been engaged to be married for over three years, but there had been some signs of "cooling off" recently.

Present History - About three months prior to examination she noticed what she took to be indigestion. There was a sensation of heaviness in the epigastrium with much flatulence, but no pain. This gradually increased till she was able to elaborate the sensation and recognise that the food was sticking at the lower end of her breast bone, and excessive salivation and vomiting began. The symptoms were not constant and were worse when she ate in company, particularly at night. She had lost about

seven pounds in weight and felt listless and depressed, and was sleeping badly. She got to sleep fairly quickly as she was always exhausted at night, but she awoke periodically from 1 a.m. onwards and did not feel refreshed in the morning.

Examination - She was a well-developed girl of fair complexion, and subnormal nutrition. The tongue was slightly furred and nothing was detected on abdominal examination. She ran an evening temperature of 99°F. and her pulse was persistently rapid and her blood pressure slightly raised - 130/75 mm. Red blood cells numbered 3,500,000 and Haemoglobin was 60%

She had a slight cough but no sputum and there were suggestions of fibrosis in the right upper lobe. A barium meal showed a typical picture of cardiospasm or achalasia of the cardia. An attempt was made to pass a Hurst's mercury tube without success, as she was too frightened to permit of proper manipulation. It was decided to resort to general anaesthesia and a mercury tube was passed easily under light anaesthesia, and the operation was repeated subsequently without anaesthesia. About a fortnight later she started to run an evening temperature of 100° to 101° F. down to 98.4°F. in the morning. Her cough was worse but she said she had no sputum. Examination of the faeces, however, revealed Tubercle Bacilli. A week later she had a hectic temperature and

X-Ray examination showed an early snowstorm picture. She died five weeks later. Post mortem examination showed a small tuberculous cavity which had ruptured into a pulmonary artery. The oesophagus was dilated and slightly hypertrophied but the sphincter was normal.

Commentary - Symptomatically, radiologically and pathologically this was a typical case of Achalasia of the Cardia. It was thus designated by Hurst[25], who agreed with Rolleston[26] that it was due to a failure of the co-ordinating mechanism which inhibits the cardiac sphincter while the longitudinal muscle coat of the intestine contracts. It is due to autonomic imbalance in the form of sympathetic overaction, and can be experimentally produced by cutting the vagus below the recurrent laryngeal nerve (Cannon). It may begin in infancy and then usually affects boys.

Now there are two possible sources of sympathetic stimulation in this case. Firstly the tubercular toxin which must have been circulating in her blood is a powerful sympathetic stimulant. Then she was passing through a period of emotional stress due to difficulties in her love life. Her fiancé seemed to be less cordial and perhaps this was a situation she "couldn't swallow," and so gave symbolic localisation to her psychosomatic upset, which was seized upon and exaggerated by the tuberculous toxin. A third

possible explanation is that enlarged tubercular mediastinal glands were pressing on her vagus and paralysing it, but this could not be clearly demonstrated.

Case IX. A.G. Aet. 2. (Female)

Complaint -Vomiting.

Duration - Since birth.

Family History - The father, aet. 26, was a miner and was healthy. The mother, aet. 36, was also healthy. There was one other child, a female, aet. 13, by a previous marriage of the mother - She was healthy. No children had died and the mother had had no miscarriages. There was no history of Tuberculosis or Rheumatism in the family nor was there said to be any tendency to nervousness or mental illness. The mother was rather dull and had a slight ptosis of the left eye.

Past History - Pregnancy and labour were normal and delivery was at full term. The baby was healthy but bottle-fed on cow's milk and water, as she refused to take the breast. Almost immediately after birth she began to have occasional dark brown projectile vomiting directly after meals. At first this only occurred once every two to three weeks, but increased in frequency. Latterly the attacks came on suddenly after every meal for a day, at intervals of about a week, leaving her very exhausted after the attack. The stools were also dark brown in colour. She was admitted to hospital and was found to be

small, weighing 11 lb. 11 oz., and very pale, with Rickets and a marked anaemia. Red blood corpuscles numbered 2,300,000 per cubic millimetre and Haemoglobin 20%. White blood corpuscles numbered 14,200 per cubic millimetre. There was no definite abnormality on the blood film. She had no vomiting while in hospital and was treated with Cod Liver Oil and Iron. The Red blood corpuscles increased to 3,560,000, and Haemoglobin to 35%. The white blood corpuscles decreased to 9000, and she lost 11 oz. in weight. She was in hospital for eighteen days.

Present History - Up to the onset of this present illness she had been perfectly healthy since discharge from hospital. She has never had any sickness, her appetite had been very good and she gained in weight, rapidly becoming a bright, active, healthy girl with no sign of nervousness. Her bowels tended to be costive and she was given laxatives frequently. Five weeks before admission she suddenly began to be sick about five minutes after finishing meals. She was aware of the impending occurrence as she always gave her mother warning. The vomit was not projectile and consisted of the food just taken. She appeared to be considerably relieved after it. This occurred after every meal for five weeks, irrespective of different types of foods, sedatives, etc., and she had wasted markedly. She was still

keen for food, was extremely thirsty, and was constipated. She was getting Ol. Ricin. two to three times per week.

Examination - She was small and pale with marked wasting. She weighed sixteen pounds, was fretful, irritable, very morose and refused to be cheered up. She had a marked tubercular diathesis in her eyes, and signs of rickets in the chest. Her tongue was furred and moist.

The vomit consisted of food just taken, plus mucus, saliva and small quantities of free hydrochloric acid. When vomiting she had prolonged "hawking" after which the vomit was gulped out. There was nothing abnormal in the throat or abdomen. A Barium meal showed a typical cardiospasm in the antero-posterior view.

The red blood corpuscles numbered 5,000,000; Haemoglobin 70%; white blood corpuscles 15,000; Polymorphs. 72%; Lymphocytes 25%; Monocytes 2%; Basophils 1%. The urine contained acetone ++; Albumen and sugar were absent.

Treatment - At first she was given glucose and sodium bicarbonate by mouth. Three days later the vomiting was still slight and appeared to be hysterical, but later become more frequent and there were signs of increasing wasting. Rectal salines

with Glucose and sodium bicarbonate were then given six hourly. She began to look better but the vomiting continued. It was unaffected by the type of food, but fluids were taken best. After some days atropine gr. 1/320 was given by the mouth fifteen minutes before meals. There was a slight improvement at night but no change during the day. A week later a Hurst's mercury tube was passed into the stomach, but was definitely gripped on withdrawal. Vomiting now became worse, her temperature rose to 102° F. Her breathing was like pneumonia but nothing definite in the lungs was detected. A gastrostomy was decided upon but she collapsed shortly before the time fixed for the operation. 150 c.c. of glucose saline were given intravenously and she rallied considerably, but collapsed again and died before the gastrostomy could be done.

A post-mortem examination showed a small diverticulum in the anterior wall of the oesophagus just proximal to the cardiac sphincter, which was tight and like a cartilaginous ring. The oesophagus was greatly dilated and hypertrophied. Suppurating tubercular mediastinal glands were present pressing on the oesophagus but were not the cause of the constriction. They were pressing on the tissues in which the vagus nerve was embedded.

Commentary - This is a case of exceptional interest, particularly when considered in conjunction with the previous case.

They each have the common factor of tuberculous infection, but in this case there was definite evidence of mechanical interference with the autonomic nerve supply.

This case was a spasm and not an achalasia, for the mercury tube was gripped on withdrawal, and post mortem the sphincter was hypertrophied, probably explicable by the prolonged continuous mechanical stimulation of the autonomic nerve supply. This case was thought to be an expression of a peculiar introverted personality, but the periodic occurrence of vomiting after every meal for the whole of one's life is calculated to turn the sunniest personality into a sour, morose, unsociable one. Even so, it would still send out a stream of sympathetic stimuli which would aggravate the condition.

Case X. A.D. Aet. 5 years. (Male).

Complaint - Obstinate constipation since birth, and anorexia, lassitude and vomiting for three weeks.

Family History - He was the illegitimate child of a girl who might be classified as of the restrained emotional type. No restitution, matrimonial or financial, had been made to her on the birth of her child, and she had to face the hostility of her home in a small country manse without any moral or physical support. She was shy and sensitive, and had felt the blow of her lapse very keenly but was very reticent, and made little display of her emotions. She rarely appeared in public after the child was born, but was very deeply attached to him and very apprehensive of any ill that might befall him.

Past History - He had been a healthy, bottle-fed baby, wild to the point of recklessness when in the company he knew well, but unsociable and extremely shy with any outside his immediate home circle.

Present History - Ever since birth he had been extremely constipated, intervals of seven to ten days elapsing between stools if left alone. Drugs rapidly lost their power to empty

the bowel and prior to admission he was taking one ounce of Ol. Ricin. without effect, the family doctor having run the whole gamut of purgatives in the Pharmacopoeia and reached the depths of despair. The abdomen had been protuberant since birth, but he had no pain, diarrhoea, or headache. For about three weeks prior to admission to hospital he had been listless, had no appetite, and was vomiting frequently.

He was well developed and well nourished, but pale and slightly toxic. He was sullen, morose, and rarely spoke. He had the typical stigmata of the tubercular diathesis - long eyelashes, deep brown eyes, blue sclerotics, lustrous hair, and downy hair on the back.

The abdomen was tumid and doughy, and the outline of the colon could be felt. Small discrete glands were palpable in the posterior traingles of the neck on both sides. His Tuberculin Reaction was positive.

Ol. Ricin. oz. 1. produced no effect, but an enema yielded a copious costive result. A barium enema was given and this revealed an enormous dilatation affecting the whole colon. After a week none of the barium had been evacuated and an enema had to be given to empty the bowel. The residual urine in the

bladder was estimated and found to be only 3 c.c.

It was decided to submit the case to operation, and the abdomen was opened through a left paramedian incision. The colon was found to be large, hypertrophied and atonic. The posterior peritoneum was opened and the pre-sacral nerve and its lateral branches were isolated and resected. The effect on the bowel was almost instantaneous. The colon became small and spastic, and stood on edge as if cartilaginous. The abdomen was closed, and the bowels moved spontaneously thirty six hours after operation. After a slight initial irregularity they moved regularly every day.

The patient was kept under observation for several weeks and a second barium enema was given. This showed a colon of normal calibre with numerous peristaltic waves.

An equally striking and less desirable change was that he began to show definite and unmistakeable facial and mental signs of mental defect which were not present before operation. He became very wild in his behaviour and it was quite impossible to reason with him. At the time of writing he has been under observation for a year and his bowels continue to move with passable regularity without the aid of drugs, and his

mental condition appears to remain in statu quo. Enquiry was made a year later and the information given that there had been a degree of relapse and he again required laxatives, but not of the drastic quality and quantity used previously. Mental development and particularly moral sense seems to be at a stand-still.

Commentary - This presents a typical case of Hirschprung's Disease on symptomatic, clinical and radiological grounds. Hirschprung himself regarded the condition as a developmental abnormality[27] and numerous theories have since been advanced.

Mechanical theories attributed it to faulty valve action (Wilkie[28]), to torsion of the mesocolon (Barth), and to anal atresia (Treves).

Neurogenic theories suggested a spasm of the internal sphincter due to fissure formation[29] but the absence of sphincter hypertrophy and of a demonstrable fissure in many cases is against this.

Hurst advanced the theory of inco-ordination of neuromuscular apparatus analogous to that occurring in achalasia of the cardia. Adamson and Aird[30] proved experimentally that the condition was due to sympathetic parasympathetic imbalance by producing the condition in cats after extirpation of the para-

sympathetic nerve supply to the colon. The cause of this imbalance in human beings is obscure.

Inflammatory theories have been advanced, the condition being supposed to result from a degeneration of Auerbach's Plexus secondary to chronic colitis. It seems more probable that the colitis is secondary to the Hirschprung's Disease. This case demonstrates clearly that the condition is due to relative sympathetic overaction. The effect on the muscular tone of the bowel of removal of the sympathetic nerve supply was instantaneous and was confirmed by continuance of altered and more normal bowel function.

Aetiological factors of importance in this case were the profound maternal emotional upset accompanying ante-natal and early post-natal life, and the mal-development of personality which made the boy unsociable and unreceptive to normal emotional stimuli. He seemed to be immune to the reaction of fear. It is possible that the early occurrence of what might be quite a simple condition of constipation was aggravated by maternal upset over, and preoccupation with, this disordered function, and so the stream of abnormal psycho-somatic stimuli was diverted along the sympathetic innervation of the bowel to the exclusion

of other organs.

The unfavourable effect of the operation on the boy's mental state was very pronounced. Prior to operation he looked a fine intelligent boy, though actually appearances flattered him. After operation when bowel functions were normal he began to develop unmistakeable facial appearance of mental defect - the gaze was less sharp and the tongue tended to protrude. Was the abnormal innervation in reality a safety valve whereby abnormal psychic tension was relieved? The subsequent tendency to relapse suggests that cutting of the sympathetic nerve stimuli is merely blocking the outflow of psychological forces and that these will find another outlet, if in the same organ, by decreased parasympathetic action, thereby restoring the previous imbalance.

Case XI. A.E. Aet. 8. (Female).

Complaint - a) Obstinate constipation.
b) Enormous appetite.
c) Loss of weight.
d) Frequency of micturition.

Duration - a) at least 8 months.
b) a similar period.
c) 3 months.
d) " "

Past History - This patient had been treated for some time for obstinate constipation, but was later again brought to hospital on account of frequency of micturition. She had been a healthy, bottle-fed baby, and had no illness of any note until she had Diphtheria at the age of six years, and about a year later she had measles, and her present complaints were said to date from then.

Family History - Her mother had died of Pulmonary Tuberculosis less than two years prior to her admission to hospital

and for the past eight months she had been under the care of a step-mother, who, however, was very fond of her, and they appeared to be the best of friends. The father's second marriage had caused great displeasure to his deceased wife's relatives, who insisted on having the child frequently with them and endeavoured to turn her against her step-mother, making allegations of negligence and ill-treatment which could be emphatically discounted by the child's attitude to her step-mother, and her condition both as regards nutrition and clothing, but which must nevertheless have acted as a severe nervous strain on the mind of a child of this age.

Present History - The short length of time during which step-mother and child had been associated caused some doubt as to the date of onset of symptoms, but as far as could be ascertained it was little more than eight months previously.

During this time she had been very constipated, two to three weeks elapsing without a motion. Numerous laxatives and diets were tried, but each lost effect after a few days of success. The interesting observation was made that Liquid Paraffin passed right through the bowel unchanged, except for slight staining, and unaccompanied by any faecal material. Her appetite was said to be enormous and well-nigh insatiable, and she was passionately

fond of sweets and would go to any length to procure them.

She was said to have little apparent moral sense, and would tell pointless lies. She would steal food which could have been had for the asking, and the step-mother was only able to elicit the truth about her bowel movements by strict personal observation. As far as could be judged the step-mother's story was perfectly sincere, and caused her some anxiety and distress.

For the past two to three months the child had had marked frequency of micturition, unaccompanied by dysuria or other urinary symptom. As micturition occurred every half to one hour the child was something of a nuisance in public and it was this symptom which brought the child to hospital. She was said to have become more thin and pale, and very listless during the past two to three months.

Examination - She was tall and well-developed for her age, rather under average nutrition, showing signs of recent loss of flesh, but though pale, she did not look ill.

She was a quiet, very shy, but pleasant, well-mannered child on admission, although, as she grew accustomed to the ward and its frequenters, she became much less shy. Unfortunately her step-mother's story about her habit of pointless lying was

borne out in hospital.

Her skin was harsh and dry, and she had dry "fuzzy" hair. She had a short, dry cough, but no definite signs could be made out at first in her chest.

The abdomen was slightly tumid and resistant, the colon was palpable, and a swelling which proved to be a distended bladder extended from the pubis almost to the umbilicus. Her tongue was dry, and coated with yellowish-white fur. After passing urine the bladder was still found to be distended, though to a lesser degree, and on catheterisation sixteen ounces of residual urine were obtained. There were no abnormal constituents in the urine.

An enema yielded a copious costive result, and a Barium Enema showed marked dilatation of the whole of the colon. Cystoscopy revealed a marked atony of the bladder, and passage of ureteral catheters showed dilatation of the lower third of the left ureter and of the left renal pelvis with residual urine in both these dilatations.

It was felt that the child was in greater danger from the condition of her urinary tract than from that of the bowel, as it was likely that infection of the bladder with retrograde

spread to the kidney would ultimately occur, and it was therefore decided to operate. The abdomen was opened through a left paramedian incision, and a large atonic colon and bladder were found . The posterior peritoneum was opened, after the bowel had been packed off, and the pre-sacral nerve and its lateral branches were isolated and excised.

Shortly after operation the colon and bladder were no longer palpable. Several weeks after operation a Barium Enema showed a colon of normal calibre with active peristalsis,and cystoscopy showed definitely increased bladder tone as shown by its decreased capacity. There was also no residual urine in the bladder, ureters, or renal pelves. The bowels moved regularly after operation and the frequency of micturition ceased.

During convalescence she suddenly had a slight haemoptysis, the exact site of origin of which could not be found. It did not appear to come from the upper respiratory tract, and though some moist sounds were audible over the right middle lobe posteriorly, there was no definite clinical or radiological evidence of a pulmonary tubercular lesion. The Tuberculin Reaction was positive to Human T.B. and this, coupled with the mother's tuberculosis, the child's history of lassitude and loss of weight following measles, and a slight cough culminating in a haemoptysis

made one chary of dismissing too lightly the possibility of a pulmonary tubercular lesion even in the absence of definite clinical and radiological findings.

The relatives were unwilling that she should go for a prolonged convalescence under favourable hygienic conditions, and she returned home. She remained free of bowel and bladder symptoms until she returned to school several months later, when the bowels again became costive. The step-mother attributed the relapse to an excess of sweets, for which the child still had a passionate and irresistable desire.

The child was keen on school, and did fairly well there. It was noticed that as the constipation increased her appetite increased also until she would eat anything on which she could lay her hands. She was still liable to uncontrollable fits of temper and was very jealous of any attention that was paid to her brothers. She was re-admitted to hospital and a Barium Enema showed little change from the X-Ray film taken after operation. She had no urinary symptoms and the constipation responded to enemata and a high residue diet.

Information was subsequently obtained that the condition of the child's bowels had been the cause of emotional upset.

When the step-mother gradually discovered the degree of constipation to which the child was subject, and the lies she told about it, she concluded it was due to laziness and the child was shut in until the bowels had moved, or sometimes until several hours had elapsed. By this means the child's attention was probably fixed on this bodily function.

Commentary - This case differs from the previous one in that onset of symptoms was not at birth. It appears to be related to the development of (a) a difficult emotional situation at home, in the transference of authority to a new mother, and emotional interference by the deceased mother's relatives. (b) The development of an active tubercular lesion, almost certainly pulmonary in nature. (c) The fixation of attention on bowel function by the unfortunate though well-meant attitude of the step-mother.

That the mechanism underlying the condition is an autonomic nerve imbalance was again conclusively shown by the result of operative removal of the sympathetic innervation. That this does not deal fundamentally with the condition is shown by the tendency to relapse. If the fundamental factor, as I believe, is a faulty emotional reaction to environment, this reaction will find another outlet, especially if it is fanned by the

stimulating sympathetic action or parasympathetic inhibition of the toxins of the tubercle or other bacilli.

The additional involvement of the bladder and lower end of the ureter is very interesting. This was a troublesome complication of the experimental work of Adamson and Aird, previously referred to. It is natural that the bladder should tend to be involved as the sympathetic innervation of both is from the lateral ganglia of the sympathetic chain through the hypo-gastric plexus and parasympathetic innervation is also common through the second and third, or third and fourth, sacral nerves.

Sympathetic effects tend to be more widespread than parasympathetic because the cell-stations of the former are in distant plexuses whereas the latter tend to be localised close to or in the walls of the viscera supplied. This is logical when it is considered that sympathetic effects are katabolic, activating for defence and increasing resistance. The parasympathetic action through the sacral plexus on the other hand is "of internal service in acts leading to greater comfort." (Cannon). If the nerve supply is double the actions are antagonistic.

The relationship of sympathetic overaction to incontinence and frequency of micturition in this case is of interest in that

I have found a mild degree of this condition in a number of cases of enuresis, due apparently to nervous upset. There is inability to empty the bladder as shown by residual urine obtained by catheterisation after micturition.

One other point is of interest. Liquid paraffin was passed almost unchanged in this patient, even when very costive. This is not uncommon in neurotic patients with constipation. Seepage of paraffin occurs, or if stronger laxatives are taken, loose motions may be passed, but the scybala left unmoved, suggesting that the condition of the bowel is poor muscle tone with achalasia of the sphincters and not spasm.

Case XII. E.W. Aet. 9. (Female).

Complaint - Obstinate constipation and mucus in stools since birth.

Past History - Ever since birth the child had suffered from extremely severe constipation. The bowels never moved without medicine and she took thirty minims of Cascara every day. The stools consisted of small, dark brown scybala, and "slime," but no blood.

Her appetite had always been capricious, and she was bottle-fed as a baby, but had thrived well. She had had chicken pox, Rubella, and Measles, but apart from the constipation had been healthy. She was rarely sick, had a slight cough, and complained of "growing pains" in the limbs, but was active and bright.

She looked the picture of health, well-nourished with a fine complexion, but with signs of the tubercular diathesis -- long lashes, deep blue eyes, and downy hair on the back. She had small, discrete glands in the posterior triangles of the neck on both sides, and her Tuberculin reaction was positive to Bovine T.B. Her tongue was coated with thin white fur, and her tonsils were enlarged.

The abdomen was tumid in its lower half, and a large ascending and descending colon with numerous scybala were palpable. She had no urinary symptoms.

She was very bright and intelligent with a strong original mind. She was pronouncedly masculine in her appearance, outlook and tastes, and despised the other girls at school and their feminine pastimes. She was very unstable emotionally, ringing the changes on happiness, stoicism and misery with great rapidity. She had a special liking for pictures and painting.

A Barium enema was introduced and revealed an enormously dilated rectum and colon. The amount of barium introduced was treble the normal amount for a child of her age. Unfortunately she was only in for investigation, so the effect of treatment could not be ascertained.

Family History - In reviewing the family history it was found that her brother and an aunt on her father's side were similarly afflicted with constipation. The brother was investigated in a nursing home and found to have a condition of Megacolon identical to that of his sister. The mother was a markedly neurotic woman, and was troubled with constipation, but not to the extent to suggest that she also suffered from Megacolon.

The parents refused to consider the question of operation, and she was put on a high residue diet and copious enemata twice weekly. The mother was advised about psychological management which had been faulty, and considerable improvement occurred.

Commentary - The salient features of this case are a neurotic heredity and environment on the part of the mother, who was highly strung, dogmatic, and unsympathetic towards the girl. The influence of heredity and environment is further illustrated by the definite occurrence of a similar condition in her brother and the distinct suggestion that an aunt also suffered from it.

Another important feature was the girl's distinctive temperament. The mother had ardently desired a son for her first child and when the boy was born there was little doubt he supplanted the girl in the mother's affections. She talked frequently of him, and illustrated in the girl's presence how superior he was in many ways. It seems that the girl's masculine outlook and appearance was an attempt to come up to the standards regarded so favourably by the mother. If masculinity was the mother's ideal then it would be hers too. As a result she had little in common with her school-mates, one of whom described her as "queer," and was driven to introversion and satisfaction in the arts. She has thus abundant sources of emotional

stimulation which found sympathetic outlet in colonic dysfunction. Probably this also served the purpose of reinstating her in parental notice, though not to maternal sympathy.

Case XIII. M.R. Aet. 10. (Female).

Complaint - a) Frequent fainting attacks.

b) "Always looks seedy."

Duration - a) 4 days.

b) 6 weeks.

Family History - The father suffers from "nervous dyspepsia," and has been in an asylum for the past six months, suffering from "depression," since he attempted or threatened to commit suicide. The mother is a frail, pale, anxious type of woman, whose father died of Pulmonary Tuberculosis. The patient is an only child.

Past History - She was a full term baby, born by normal delivery, weighed nine pounds at birth and was breast fed. She had whooping cough when six months old, and mild dysentery when four years old. Tonsils were removed at eight years of age.

She has always been a very quiet girl, not fond of children of her own age. She has no inclination to play outdoor games, partly due to lack of interest in them, and partly because she is always tired. She is very studious and fond of books.

Present History - Four days ago she fainted three times

in school, and again the next day. The attack had a sudden onset. She went deathly pale and held her hand over the left side of the chest. The attacks were of short duration and there was no actual loss of consciousness. The attacks occurred on the eve of an important examination, about which she was needlessly apprehensive.

Examination - When seen she was a tall, thin, pale, asthenic child, with a long thorax and a narrow costal angle. Posture was bad, and movements languid. She was very nervous and apprehensive and would not let the mother out of her sight. Mentality was fair. Her appetite was poor and she had constipation with alternating attacks of diarrhoea. When loose the stools were pale and greasy, and examination showed a total fat content of 22%, composed of 47% split fats and 53% neutral fat. Gastric analysis showed hypochlorhydria. The tongue was furred and the breath foul. Enlarged mesenteric glands were palpable in the right iliac fossa, and the Von Pirquet Reaction was positive to Bovine T.B.

The abdomen was tumid and X-Ray examination showed a large, atonic, redundant colon. The knee jerks were very brisk. She had nocturnal and diurnal enuresis and was soaked on return from school on many occasions. The urine contained pus cells and

red blood corpuscles, and abundant B. Coli. Catheterisation after micturition yielded four ounces of urine.

Treatment - She was given a course of Cl. Ricin. and enemata to clear the bowel, and was then put on Pancreatic extract and bile salts. This improved the quality of the stools and further examination showed only 8% of fats, of which only 15% was neutral fat.

Progress - The tongue and breath became much pleasanter, the diarrhoea ceased, but she still required occasional enemata. The hypochlorhydria was now less marked, but not up to average standards. X-Ray examination by barium enema showed that the bowel condition was unchanged.

Commentary - This case shows a condition of megacolon with associated alimentary and genito-urinary disturbances. The amount of fat, and especially of neutral fat, in the stools is an indication of diminished lipase action, and therefore of decreased secretion of pancreatic juice. Associated with this is diminished gastric secretion.

These two secretory dysfunctions with constipation due to an atonic, dilated colon, suggest an autonomic disturbance in the form of relative sympathetic overaction. The urinary findings indicate an inability to empty the bladder, with

overflow incontinence, and stagnation and infection of the residue, and support the theory of sympathetic overaction. There are again grounds for advancing a psychogenic origin for the condition. There is a morbid mental heredity, an unfavourable environment with a depressed father and an overwrought mother, and the development of an introverted personality.

It was not thought that the condition justified operative treatment, for symptoms were not severe, and also the dysfunction was more generalised than in the previous cases. No removal of sympathetic trunks, for example, could influence the pancreatic secretion. She was therefore put on a high residue diet with restricted fats, given abdominal exercises, and massage and hydrotherapy, and sent for a long holiday in a cheerful environment. The mother was advised to try to cultivate outside interests for her and to give her fresh air and exercise. Enquiry a year later received the reply that she was in better health than ever before.

Part V.

DISCUSSION.

Thirteen cases of alimentary dysfunction have been analysed and their salient features commented upon. They have been selected from a mass of disorders of the alimentary tract because they present distinctive features from which definite deductions can be made and applied to other cases investigated.

All of them have the common feature of dysfunction due to neuromuscular inco-ordination arising from autonomic imbalance. In certain of them there was a definite organic lesion which reflexly was sufficient to precipitate the nervous upset, and in others the aetiology was more obscure.

Every case centred round a sphincter which guarded the exit from one viscus and the entrance to another. Pavlov once evolved the attractive conception of the alimentary tract as resembling a railway system divided into sections, and the sphincters as the signal-men who would not let a train enter their section until it was clear. He divided the alimentary tract into sections such as from the lips to the cardiac sphincter, from there to the pylorus, from the pylorus to the ileocaecal valve, thence to the pelvi-rectal sphincter, and the last lap from there to the anal

sphincter. It is a very useful conception in studying alimentary disorders. It explains why a chronic appendix lesion, with ileo-caecal stasis, causes gastric symptoms. The pylorus remains closed because the next section is blocked, and so on. This mechanism depends for harmonious working on the finely balanced antagonism of the sympathetic and parasympathetic nervous systems, so that a wave of contraction always meets with relaxation at the sphincter in front and closure of the one behind, thus facilitating the passage of contents. Failure occurs when the sphincter is either in spasm or does not relax, or where muscular contraction is faulty, or a combination of these factors.

The stimulus which initiates this mechanism may be local, as when a pyloric ulcer causes pyloric spasm, or the presence of unsuitable material in a viscus renders its further passage inadvisable.

It seems reasonable that there must always be some organic cause which initiates the stimulus to nervous action, however much the response may be modified by extrinsic factors, but where there is no apparent adequate organic cause we are justified in our present state of knowledge, in regarding the dysfunction as a neurosis.

The importance of psychogenic factors has been stressed in the cases analysed. These have taken the form, principally, of a

morbid heredity, as shown by the occurrence of mental abnormalities in the parents or near relatives, or a morbid environment in the form of mentally abnormal persons in contact with the patient or of difficult situations to which the patient could react abnormally.

If one of the parents, for example, is of the worrying type, not only is the child likely to be born with a nervous system which has an increased tendency to be hyper-irritable, but the atmosphere of fuss and uncertainty which that parent's actions arouse suggest, consciously or subconsciously, according to the age of the child, that the world is a difficult and dangerous place. Why it is, he does not know, and that only increases his fear and fosters that spirit of anxious expectation which is so prominant a feature of the psychoneuroses. With a hyper-irritable state of his higher mental processes established, any abnormal, or even a normal sensation, conveyed by afferent fibres from his organs, is liable to elicit an abnormal response, which probably originates at subthalamic levels, and ultimately reaches the cortex, where conscious reflection upon it occurs, but by the time the sensation appears in consciousness the emotion aroused at subthalamic levels has already discharged stimuli via the autonomic and endocrine systems on to the affected organ, still further upsetting its functions and increasing the unpleasant conscious

sensations, suggesting and confirming the idea of disease. Probably parents aid the process by fixing the attention of the child upon an organ. A feature of the types of cases analysed in comparison with most of the other cases of neuroses investigated is that there is an intense effect upon one organ function, and perhaps such other organs or functions as are anatomically or physiologically related to it, and comparatively little effect upon other organs, whereas in the majority of the neuroses there is a more widespread effect upon all the systems with an autonomic nerve supply, though the maximum effect and idea of disease is concentrated upon one organ. Children and old people both tend to react in a limited area, though for different reasons. In children I think the parents suggest the localising by pouncing upon a disordered function and striving to correct it, thus fixing the child's attention on it, and concentrating all efferent stimuli into one channel.

The neurotic symptoms of old people are, in my experience, almost all connected with the circulatory or alimentary systems. I believe this is due to a preoccupation with the prospect of death, which is associated with two prominent causes which are feared - heart failure or a stroke affecting the circulatory system, and cancer involving the alimentary system. Adler has stressed the doctrine of organ inferiority, and such a condition

real or imagined, probably helps to fix an idea of disease upon a particular organ which is either the seat of previous disease or injury, or has been suggested by its involvement in a case known to the patient. Thus a neurosis tends to affect the same organ in different neurotic members of one family, probably more due to suggestion than to actual inherited defect of the organ concerned

There are certain factors which predispose or sensitise the individual nervous system to breakdown. One is faulty physique. The tendency of certain types of neuroses to appear in certain types of individual is evidence of this. For example, the occurrence of neurasthenia in the tall, thin, pale, asthenic individual with long thorax and narrow subcostal angle.

Infection is an important sensitising factor and the most important in my opinion are (a) tuberculosis and (b) naso-pharyngeal infection. Of the cases analysed both cardiospasms had active tubercular infections, and three out of four megacolons had positive tuberculin reactions. The significance of this is more apparent in children, as tubercular infection is too common in the adult for tuberculin reactions to be of importance. It is suggested that tuberculosis produces its effects primarily by its powerful sympathetic stimulant action, and by the psychic conflicts and fears it engenders in adults. Naso-pharyngeal infection is a potent factor because of its interference with sleep, its symptoms of headache and depression, and its interference with

gastric function by swallowing of muco-pus causing gastritis, and also by its liability to cause intrathoracic infection by gravity and by absorption.

Of the factors tending to create that hyper-irritable condition of the nervous system which is a fundamental feature of the neuroses Conflict is one of the most important. It is usually a conflict of individual needs with reality. Freud considers that these needs are exclusively sexual. Adler thinks they are concerned with a feeling of inferiority and a desire to attain to a feeling of superiority. I cannot presume to state dogmatically who is fundamentally right, but my experience is that the views of Adler are more applicable in the vast majority of cases, in which they conveniently embrace what is useful of Freud's teaching. This desire for superiority is noticeable early in life, and many are the devices to which children resort to attract the attention they feel is their due, and illness is one of the commonest. The appearance of a rival in the form of another addition to the family often starts a neurosis, especially if one child's attributes are lauded to the disadvantage of the other, and illness may be invoked to attract attention and to furnish an excuse for the failure to achieve the success which they feel they deserve.

It is important to try to elicit the purpose behind an ill-

ness, which will often explain it. Women especially, in my experience, use illness as a lever to avoid unpleasant tasks, or to bring an erring or thoughtless husband to heel. One frequently meets women who have no energy for housework but find a surprising burst of life when golf or a concert are in prospect. This is allied to Freud's doctrine that the symptom is a satisfaction for the patient, though he limits it to sexual satisfaction. Disturbances in the sex life are quite frequent factors in neurotic cases, if not found to occupy the paramount position which Freud allots to them, though that may be due to a reluctance to search for them with the expectant zeal of a Freudian. Difficulties are usually due to lack of harmony in the attitude of partners towards sex matters, frigidity, or nervous tension consequent on faulty ideas about contraception, and are usually adjustable when discussed with sanity and restraint.

Conflict is frequently found to centre around religious feeling, and its frequency amongst those of an evangelical persuasion has been discussed. They are more concerned in making their beliefs real and practical and are more conscious of the conflict which arises from the consciousness of things done which ought not to have been done, and things left undone which ought to have been done. Sympathetic advice will often help

them to stabilise their belief on a surer basis and to mould their lives in harmony with it.

Work, or lack of it, has been investigated as a factor in the causation of the neuroses, and again it is conflict that is the essential feature. Lack of interest in work, a feeling of inefficiency, the dread of dismissal, despair because of unemployment, and worry over the responsibilities or financial commitments of business, may precipitate a neurotic reaction. The association of hyperpiesia to the neuroses appears to follow general principles. Worry causes a transient rise of blood pressure by sympathetic action, which is prolonged by adrenalin. If a long series of anxious reactions takes place, permanent tissue changes may result. I have observed this frequently and simply by noting the condition of the radial artery. In early cases it is definitely palpable in times of stress, and not at others. This is due to a temporary spasm due to anxious stimulation of the sympathetic innervation of the vessel wall which may later become permanent from hypertrophy of the muscular coat, and a state of essential hyperpiesia then exists.

The relationship between temporary spasmodic and permanent organic changes is of interest. What is the relationship between pyloric spasm and congenital hypertrophic pyloric stenosis? If

one is the precursor of the other, as might be thought reasonable, why is the former commoner in girls and the latter in boys? As a matter of experience cases of pyloric spasm do not develop the hypertrophic condition though the latter may have developed from the former. By analogy from my two cases of cardiac sphincter dysfunction, one was an achalasia and the other was a spasm with hypertrophy. The latter appeared to be associated with persistent mechanical stimulation of its autonomic nerve supply, whereas the former had probably only intermittent stimulation, and perhaps this is the explanation.

Is there any connection between the peculiar affective relationship between a mother and her baby boy and the occurrence of hypertrophic pyloric stenosis in males and only spasm in females?

The manifestations of the series of cases reported have been shown to be expressions of autonomic nerve imbalance. Of interest and importance is the fact that in several of the cases the dysfunction was not confined to one organ, and where another organ was involved the manifestations in it were also explicable on the grounds of autonomic imbalance. Now in this particular series the associated disordered functions were those which are anatomically and physiologically closely related, for example, the bladder

and the bowel, except in the fourth case of megacolon where there was disordered gastric and pancreatic secretion, which is also explicable on grounds of autonomic imbalance but through different branches of the nerve system. The adult case of achalasia of the cardia and the case of pyloric spasm with haematemesis, both showed involvement of other systems of the body more remotely connected than the bladder and the bowel, such as the cardiovascular system, and the disorder of these other systems is also an autonomic one. This suggests a common cause for all the systems involved in any one case, and one is led back from the periphery, where the autonomic system ends in the viscera, towards the central nervous system, to the point where the afferent nerve trunks of the disordered organs converge and the efferent trunks originate. When in one case the organs involved may be so widely separated as the pupil of the eye and the bladder, one is forced to go back to the mid-brain to find their point in common. The universal presence of higher mental processes in connection with cases of autonomic nerve disorder forces the conviction that the cortex cerebri is either the fons et origo of the disordered autonomic stimuli, or modifies them profoundly.

Recent research has claimed that the diencephalon is the seat of the emotions. It at least seems justifiable to admit that it is the seat of <u>expression</u> of the emotions, but that does not

abolish the control, largely inhibitory, which the cortex exercises over the emotions. It is claimed that the diencephalon is largely controlled by the anterior pituitary, with which it is closely connected, and that as the pituitary is the president of the endocrine committee the emotions are largely under endocrine control. The relationship between the emotions, the autonomic system and the endocrines is complex. Thyroid and adrenalin are both sympathetic stimulants and both are secreted under emotional stress. It seems most probable that when an afferent impulse reaches the diencephalon it stimulates the thyroid and the suprarenals through the antonomic system and simultaneously the emotion appears in consciousness, but it is the conscious reflection upon the visceral sensations which suggests the idea of disease and forms the basis of the neurosis, so I consider we are justified in regarding the neuroses as psychogenic disorders. The complication of the psychic factors by the addition of conditioned reflexes has already been discussed.

The psychological type of these disorders is interesting. A classification into neurasthenia, anxiety states, hysteria, and obsessive compulsive states has already been made on grounds of simplicity. Analysis of 160 cases of psychoneurotic disorder

showed 16 case of neurasthenia, 2 cases of hysteria, one being aphonia and the other a paralysis, and 2 obsessive-compulsive states. One of the latter was a woman who had married, to escape from a painful situation at home, a man much older than herself with almost no interest in common with her. She had fear of becoming insane, and complained of strong impulses to smash windows and to hurt her children. It was suggested to her that the fear of insanity might be construed as a desire for removal from her painful situation at home, and reflection on this eased her mind considerably. The other obsessive-compulsive case was an emaciated, shy child of five, who did everything twice. History and superficial analysis suggest that the obsession is bound up with the number "two" and dates from the arrival of her baby brother He is now much bigger than she is, and the parents have been in the habit of emphasising how she is behind him; i.e., the second, in many ways. She has been removed to hospital in the hope that a better adjustment can be made.

Differential Diagnosis of Neurosis.

A neurosis has to be differentiated from

I. An Organic Lesion.

To assess this factor it is essential that a most thorough clinical and, if necessary, laboratory examination be carried out. The physician must be in a position to state with authority the role of physical and mental factors in the production of the patient's condition.

(a) There may be no organic lesion of any significance and the physician must be able to convince the patient of this.

(b) There may be organic disease present but the manifestations are so overlaid with psychic complications that the organic factors are completely masked, until perhaps they are too advanced or even fatal.

(c) There may be a slight organic condition which has caused emotional perturbation because it suggests a more serious organic condition than is present. It is the task of the physician to evaluate these factors and apply the necessary adjustment.

II. Manic-Depressive Insanity.

In neurosis the depression is variable and is influenced by environment and rest. It is regarded by the patient as a result, and not an essential part of, his illness. It can be traced

to exogenous sources, not recognised by the patient, but anxieties are often difficult to trace.

In Manic-Depressive Insanity the depression is a thing in itself which descends on the patient like a cloud, and varies little. It is a result of loss of all feeling. It is not influenced by external factors and the patient does not believe recovery is possible. Anxieties have no effect on the condition.

Prognosis.

The prognosis is favourable if the causal factors can be discovered and brought to light, and the patient is capable of appreciating their significance. The patient must realise that his mental state is the cause of, and not the result of, his illness. If there is an associated organic lesion its amenability to treatment must be taken into account as well in estimating the prognosis. It is very difficult to estimate the result of treatment, as any form of it may have a beneficial effect by means of suggestion. The test is the ability of the patient to withstand the stress of life over the years. The anxiety states and the hysterias give the highest rates of cure, up to 75%, if properly treated, and if so, there should be no relapse.

It is too early for me to give any estimate of cures in my

series of cases, but the vast percentage are, at least temporarily, completely alleviated or much improved.

Treatment.

The first essential in treatment is a relationship of confidence between doctor and patient, whether the former has to assume the method of authority or of comradeship.

The second essential is to let the patient talk. Every neurotic has a buried morbid sense of guilt, and great relief is obtained by unburdening their souls to someone who is interested.

The third essential is never to give the patient the impression that he is not believed. Always emphasise that though his symptoms have no organic basis they are real. There are no imaginary diseases, and a neurotic pain is sore.

The central idea is to convert the "infantile neurotic" into a healthy adult. It is wise never to advise on difficulties. Explain what they are and outline methods of overcoming them, but let the patient see and choose them for himself. Nothing should ever be suggested to a patient which is against his moral sense.

The methods of psychotherapy involve three processes, Suggestion, Persuation, and Analysis.

Suggestion is defined by Hart in his "Psychopathology" as "a process of communication whereby a proposition is communicated by one person to another and is accepted with conviction by the latter in the absence of logically adequate grounds for such acceptance, owing to the fact that conflicting processes which are or should be present are inhibited." This means that the emotions of the patient are utilised to cut off the idea that the symptoms are present. Various factors help to stimulate these emotions - the doctor's voice, manner, appearance, his consulting room, his instruments used for investigation, and the colour, taste and smell of his medicine being prominent among them. Suggestion is useful in mild disorders, but has the disadvantage that the cause has not been dealt with, and it may find a fresh outlet for expression.

Persuasion is "rational thinking". As Dubois of the persuasionist school says: "The nervous patient is on the path to recovery as soon as he has the conviction that he is going to be cured; he is cured on the day when he believes himself to be cured." Dejerine, also of the persuasionist school, regards treatment as involving three processes;

(1) Explaining symptoms (persuasion)

(2) Re-awakening confidence (suggestion)

(3) Re-educating the patient by using the various "complexes"

in his personality for therapeutic ends, showing him how and where he has reacted faultily, and helping him to make a better adjustment.

Persuasion is an advance on suggestion, but frequently it fails to get at causes which are buried in the unconscious, and so the symptoms may break out again. In any case emotional factors are notoriously immune against the assaults of reason.

Analysis implies a careful backward revision of every aspect of the patient's physical and mental life, as distinct from psycho-analysis, which is a particular theory and method of treatment which I am not qualified to attempt and therefore to criticise.

To a general practitioner the taking of a careful history of the patient's life back to infancy can be of inestimable value, paying particular attention to factors known to be potent in causing psychic disorder such as marriage, puberty, menopause, relationship to others, home circle, attitude towards religion, work, and play. Frequently an association is found between onset of symptoms and emotional stress which had been missed by the patient. He must then be convinced that such an upset can cause symptoms related to his body, and that fear of disease is groundless. His difficulties can then be discussed and he can be led

to see for himself the way of salvation.

Physical Treatment.

(a). Rest

A holiday is one of the most popular prescriptions for the neurotic, both with patient and doctor. It is a natural feeling when we are "out-of-sorts" that if we were elsewhere we would be better. It is not a new idea. The writer of the fifty-fifth Psalm had it when he wrote "Oh that I had wings like a dove, for then would I fly away and be at rest."

When tragedy catches us, or the pace of life whirls us off our feet; success comes with leaden feet or the house of our dreams collapses in ruin, we long for the way of escape, but wings cannot cure troubles of mind and soul. Peace of mind is not a matter of geography - it is a state of mind. If we are in conflict in our own homes, we may temporarily shake it off at the coast, but it waits like a creditor to meet us when we return. As Milton says:-

"The mind is its own place and in itself
Can make a heaven of hell and hell of heaven."

If we can solve our conflict first, then a holiday may restore the exhausted energy, but it will not solve itself while we soar over the hill-tops.

An exception to this statement applies to children. Where their neurosis is due to faulty environment it is frequently advantageous to remove them while adjustments are made so that a completely fresh start can be made.

(b). Hydro-therapy.

I am a firm believer in the efficacy of this. It is well known that heat paralyses the action of the sympathetic, as used in treatment of vascular lesions such as Raynaud's Disease. A hot bath at the close of the day is very beneficial to neurotic cases. They relax in a way previously impossible. The action on the bowel is shown by the flatus they pass in a hot bath. Some of them say they can think more clearly in a hot bath than at any other time. The following morning a cold shower and a vigorous towelling should be carried out, then five to ten minutes of exercises.

The benefit of disciplining himself by getting up at a given time and carrying out a given routine increases a patient's self-respect and he has a feeling of well-being which reflects itself in his bearing and movements.

(c). Drug treatment.

Some take the view that if the condition is not organic it

only fixes the idea of disease in the patient's mind if he is given drugs. I believe that properly used they are of definite value. It should be emphasised that the trouble is emotional and that the cure is directed to correcting that fault, but a "tonic" will help. Bromides are the stand-by in neurotic cases for most doctors, but properly used they have a very beneficial effect. Either in the form of triple bromides (of sodium, potassium, and ammonium) or combined with small doses of chloral and valerian, they cut off that ceaseless stream of useless stimuli which exhaust the patient. I have been struck with the results of the following observation: I have given a mild sedative mixture of the kind mentioned above and taken great care to avoid suggesting the term "tonic," and I have been struck by the frequency with which they apply the word"tonic" to it, evidencing that its sedative effect increased their efficiency.

Most neurotics show evidence of calcium defect in the form of soft teeth liable to caries, and as calcium is closely related to nerve function the combination of calcium with bromides is efficacious.

The muscular endurance of German soldiers during the war was said to be increased by administration of phosphates, but the pharmacologists say that the phosphorus is never absorbed. They

now admit they were wrong about ergot, so perhaps the despised G.P. is right again when he gives phosphates, at any rate,

Pot. Brom. gr. 160.
Syr. Glycerophos. Co. oz. 2.
Aq. ad. oz. 8.

Sig. Oz. ½. t.i.d. p.c.

is an apparently effective mixture.

Of recent times the work of Dale[31] and Loewi on the chemical transmission of nerve impulses whereby it was shown that acetylcholine is produced in tissues wherever parasympathetic nerves are stimulated, has given birth to a new class of drugs for treatment of neurotic disorders. I have tried injections of Acetyl-Choline (A.& H.) for the treatment of constipation, enuresis and paroxysmal tachycardia. In every case a parasympathetic effect was produced, but similar results have been obtained with injections of atropine, and it is difficult to eliminate the effect of suggestion. It is possible that it may have a place in initiating a spell of improvement in stubborn cases and inspiring that faith in the physician and a belief in the certainty of cure which are such potent factors.

(d). Surgical Treatment

I believe that surgical treatment may have a place in the treatment of the neuroses. A neurosis is a faulty reaction to a stimulus, but the fact that the response is an exaggerated one is

no excuse for ignoring the stimulus altogether. If an appendix is really pathological but is causing neurotic symptoms I believe it is right to remove the appendix and to combine operative treatment with psychotherapy.

In the cases of Megacolon I am of the opinion that in the well-marked case with dilatation and hypertrophy of the colon, and especially if the bladder is also involved, that operative removal of the sympathetic innervation is required. As, however, the condition is due to a relative overaction of the sympathetic and may really be due to decreased parasympathetic action, I believe that if the psychic factors are not treated these factors will continue to operate by inhibiting still further the parasympathetic action and bring about a relapse. In milder cases psychotherapy, hygiene, drug and lavage treatment should be tried.

In Achalasia of the Cardia Hurst's Tube may be in one hand but psychotherapy should be in the other, and any infecting sensitising factor should be appropriately treated.

SUMMARY.

The general subject of neurosis has been discussed from the historical, clinical, prognostic and aetiological points of view.

The factors underlying the condition have been set forth in detail, several new and original lines of investigation being stressed.

The manifestations of neurosis in the various systems of the body were set forth, and some new points in symptomatology have been discussed.

A series of thirteen cases of functional disorder of the alimentary tract have been recorded in detail, and their lessons applied to the neuroses in general.

The manifestations, differential diagnosis, prognosis and treatment of the neuroses have been discussed.

# CONCLUSIONS.

Certain dysfunctions of the alimentary tract - Achalasia of the Cardia, Pyloric Spasm, Megacolon, or Hirschprung's Disease - are considered to be part expressions of a generalised neurosis of psychogenic origin, in which heredity, various environmental factors, and infection, have a marked influence.

The neurosis produces its effects by imbalance of the autonomic nervous system, and is benefited by psychotherapeutic treatment in conjunction with which drugs, physical measures, and surgical treatment have a limited place.

BIBLIOGRAPHY.

(1). Guthrie. 1909. Functional Nervous Disorders in Childhood. p.8.

(2). Ross. T.A. The Common Neuroses.

(3). Halliday. Jas. L. Supplement to B.M.J. March 9th and 16th, 1935.

(4). Garrison. Introduction to History of Medicine pp. 49 & 54.

(5). Braid. "Neurypnology."

(6). Bernheim. "De la suggestion dans l'Etat hypnotique et dans l'etat de veille. 1884.

(7). Langdon-Brown. Horsley Memorial Lecture 1935.

(8). Naish. A.E. and Harding. H.E. Lancet 1935. i. p.77.

(9). Crile. G. W. The Origin and Nature of the Emotions. 1915.

(10). Janet. "Principles of Psychotherapy" p.206. 1925.

(11). Ibid.

(12). Freud. "A General Introduction to Psycho-Analysis 1920. p.259.

(13). Henderson and Gillespie. Text-book of Psychiatry. 1936. Chap.VI.

(14). Freud. "A General Introduction to Psycho-Analysis 1920. p.385.

Adler. Individual Psychology and Social Problems. 1932.

(15). Adler. Problems of Neurosis. 1929. p.162.

(16). Huxley. Jayne Foundation Lectures 1931. "What Dare I Think?" Chatto & Windus. p.74.

(17). Adler. Theory and Practice of Individual Psychology. p.142.

(18). Guthrie Functional Nervous Disorders of Childhood. 1929.

(19). Cannon. Bodily Changes in Pain, Hunger, Fear and Rage. 1915.

(20). Crile. The Origin and Nature of the Emotions.

(21). Barton Hall. Lancet 1927. ii. p.540.

(22). Donnison. C.P. Brit. Med. Journal. 21/4/34.

(23). Denny-Brown and Graeme-Robertson. "The Physiology of Micturition." Brain No.LVI. P.149.

(24). Head & Riddoch. Brain. L. p.188.

(25). Hertz. Quarterly Journal of Medicine. 1914-15. viii; 300.

(26). Rolleston. Trans. Path. Soc. of London. 1896. XLVII; 37.

(27). Hirschprung. Traite des Maladies de l'Enfance.1904. ii.

(28). Wilkie. Edinburgh Med. Jour. October 1909.

(29). Fenwick. Brit. Med. Journal. September 1900.

(30). Adamson and Aird. British Journal of Surgery. March 1932.

(31). Dale. British Medical Journal. 12/5/35. p. 835.